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ABSTRACT

This collection of articles contains descriptions of nine elementary teacher training program models conducted at universities throughout the United States. The articles include the following: (a) "The University of Toledo Model Program," by George E. Dickson; (b) "The Florida State University Model Program," by G. Wesley Sowards; (c) "The University of Massachusetts Model Program," by Dwight W. Allen and James M. Cooper; (d) "The Michigan State Model Program," by John E. Ivey, Jr., and W. Robert Houston; (e) "Northwest Regional Educational Laboratory Program," "by H. Del Schalock; (f) "The University of Pittsburgh Model Program," by Charles J. Gorman; (g) "The Syracuse University Model Program," by John B. Hough; (h) "COLUMBIA University Model Program," by Bruce Joyce; and (i) "The University of Georgia Model Program," by Charles E. Johnson, Gilbert F. Shearron, and A. John Stauffer. Also included in the document is an introduction by Glenn C. Boerrigter concerning U.S. Office of Education funding and development of the model programs; and "Educational Personnel Development: What's Ahead?" by Dean Corrigan. (JS)

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ELEMENTARY TEACHER TRAINING MODELS

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Nine Program Models Submitted to the U.S. Office of Education

SP009 381

On March 1, 1968 the Office of Education awarded contracts to nine institutions to develop comprehensive elementary teacher training models. The Spring 1969 issue of the JOURNAL OF RESEARCH AND DEVELOPMENT IN EDUCATION, published by the College of Education, University of Georgia, was devoted to a description of the models.

Seven of the following articles appeared in the Spring issue of the JOURNAL and are printed with permission from the JOURNAL. In addition, the JOURNAL has made available two additional articles: a description of the program developed by Columbia University which did not appear in the Spring issue, and a revised version of the University of Georgia model which has been considerably abridged for purposes of this publication. The introductory article by Dr. Glenn C. Boerrigter also did not appear in the original.

September 1969

PREFACE

In October, 1967, the Bureau of Research U. S. Office of Education, issued a request for proposals. The product to be furnished was "Educational Specifications for a Comprehensive Undergraduate and Inservice Teacher Education Program for Elementary Teachers." *Elementary* was defined as including preschool, primary, and intermediate ages.

Some 80 design proposals were submitted. From them, nine were selected and funded through the expenditure of about one and a half million dollars. The proposals receiving such funding were generated by the Universities of Florida State, Georgia, Massachusetts, Michigan State, Pittsburgh, Syracuse, Toledo, and Teachers College, Columbia, as well as the Northwest Regional Educational Laboratory based in Portland, Oregon.

The problem to which the design of models was addressed was clearly stated in USOE's request for proposals as follows:

> Because of the key role that the teacher plays in facilitating learning, particularly with young children, he/she must have the most up-to-date theoretical and substantive knowledge and professional skills to perform successfully. To date, research and development activities have generated new knowledge, materials, and methodologies with great potential for improving the effectiveness and efficiency of the teaching-learning process. If funds are made available, institutions should be able at this time to completely restructure their teacher education programs to include the best of what is now known and available. (October 16, 1967)

The request for proposals indicated that a systems analysis approach should be used in developing the specifications of the models. It was further stated that "the program initiated.....is designed to produce alternative teacher education models developed in sufficient detail to enable ready development into operating programs and full implementation by other institutions that train teachers."

The 22nd Annual Georgia Teacher Education Conference convened in January, 1969 under the sponsorship of the College of Education, University of Georgia, provided a useful forum for presentation of the Teacher Education Model program. Some of the procedings of that Conference are reported in this issue of the JOURNAL. ...

Evelyn J. Blewett
Editor
University of Georgia

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INTRODUCTION

THE BUREAU OF RESEARCH ELEMENTARY TEACHER EDUCATION MODELS

Glenn C. Boerrigter[1]
Bureau of Research
U.S. Office of Education

The nine elementary teacher training program models described in the following pages represent the initial part of an exciting and challenging development. We have asked educational institutions, in close cooperation with other organizations, from the public and private, profit and nonprofit sectors to: design a training model, and make cost and management tests on those designs. If the results from the tests of these designs prove feasible, then the Office of Education will support the development of several of the models up to the point where they are visible demonstrations of ways in which elementary teacher education can be improved and updated.

On October 16, 1967, the U.S. Office of Education issued a request for proposals to design model programs along with educational specifications for a comprehensive undergraduate and inservice teacher education program for elementary teachers. On March 1, 1968, the Bureau of Research awarded nine contracts to design conceptual models for programs for the training of prekindergarten and elementary school teachers, for the preservice as well as inservice components. These models were completed October 31, 1968.

In Phase II, now underway, eight institutions[2] are carrying on studies directly concerned with the feasibility of developing, implementing, and operating a model teacher training program. This is being done through an analysis of the resources, including costs, needed to develop, implement, and operate the various components of a new training model. Analyses must also be made of the appropriate administrative and management structures and devices which could be used to initiate, carry on, control, and evaluate a long-term program of development. These detailed analyses should provide alternate cost projections necessary to develop, implement, and operate any or all of the components at institutions of varying characteristics.

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[1] Dr. Boerrigter is Director, Division of Elementary and Secondary Education Research.

[2] The Florida State University; Michigan State University; Oregon College of Education; Syracuse University; University of Georgia; University of Massachusetts; The University of Toledo and University of Wisconsin.

The Phase II studies will be completed in January 1970. We believe we will then have the data necessary to consider further support of the model elementary teacher education project through a third phase, the funding of several major development activities.

The project rests on a basic assumption that problems in teacher education persist because of the difficulties of installing significant institutional change. Our guidelines make frequent reference to the need for linkages between the teacher training organization and other campus components as well as local schools, private industry, and State departments of education.

This exemplifies our concern that the teacher training program not be detached from the institutional and community setting in which it resides. Teacher training institutions participating in the project are expected to demonstrate a broad and reciprocal commitment to change. We believe that in this way the program for training teachers can indeed be relevant to the society in which our schools exist.

We believe that in a number of years, a well-conceived and well-funded program of development could produce several exemplary teacher training institutions. We have obtained little evidence at this date to suggest that this goal is unreasonable. We have ample evidence that it is considered desirable.

The Phase I models are themselves an extremely important development. They represent one of the first concerted efforts to plan positively for teacher education from its beginning through a program of continuing, inservice education. In so doing, they provide opportunities for teacher educators to examine the many recent innovations within the context of a total program.

The reaction to the project has not, of course, been of one unanimous accolades. Our demand for broad commitment which cuts across the institutional setting in which the teacher training program operates has been criticized by some as being unrealistic.

However, it is the general level of institutional interest and inquiry which we feel is the best testimonial to the excitement which these program specifications or reports have created in teacher education. The project has provoked discussion. It has, we believe, stimulated hundreds of institutions to take a close—or closer—look at their teacher training programs. Major reviews such as the one presented in this revision of the Spring issue of the JOURNAL will provoke additional examinations of better ways to train elementary teachers.

EDUCATIONAL PERSONNEL DEVELOPMENT: WHAT'S AHEAD?*

Dean Corrigan
US Office of Education

All of us deplore the fact that most educational change in the past has occured only when the forces that tend to pressure the status quo are finally stretched to their breaking point. In some respects we have lived from one crisis to the next with little impetus for planned change being generated in between. And while we have tried to put out the current fire we, of course, have little time to give constructive thought to the positive, long-range direction of educational endeavor.

Like the fabled bird who flies backward so that he can see where he has been, we have charted our educational course from a rear-view perspective enhanced by hurried side glances at the present. Seldom have we flown oriented positively toward the goals we are seeking via the route we should travel.

Speculation about the future is indeed a crucial activity for those responsible for planning and developing educational programs of all sorts. To prepare the educational personnel who will have the special role of guiding the young in the years ahead will take all we can accomplish by way of advance planning and action based on long-range assessments of that world. We have no rational choice but to try to imagine what the trends of the years ahead might be so that we can prepare tomorrow's teachers and their students to deal with them. Barring a major catastrophe, the population that is going to influence the world over the next two decades is alive today: today's youth will be in their 30's and 40's twenty years from now, and today's infants will be entering adulthood. If they survive the "double-think" process which George

*Excerpts from a speech delivered at the Twenty Second Annual Teacher Education Conference, University of Georgia, January 17, 1969.

Orwell gave that "negative utopia" in his novel, "1984," this year's kindergartners who manage to complete four years of college will be graduating in 1985.

The Next Twenty Years

Although it is possible that schools in the next twenty years will be used as instruments of thought control and social manipulation, I am, nevertheless, optimistic enough to believe there will continue to be a commitment to freedom, creativity and equality of opportunity. With this basic assumption, I will attempt to identify some of the changes that will take place, and then draw some implications for educational personnel development.

No effort is made to identify all or even most of the changing conditions which are having, or might be expected to have, an impact on education. I have chosen to focus on a limited number of changing conditions which seem especially pertinent to developments in education in the years ahead. I trust they will suggest others which ought to be considered. In general my comments could be clustered around two areas of change: the *explosion of knowledge* accompanied by dramatic technological developments and the *explosion of human interaction.*

The Explosion of Knowledge and New Technologies

The rapid advances on our frontiers of knowledge and new technologies have given us almost unbelievable new processes and products which will have the power to enlarge or inhibit the potential of the individual and society.

Obviously there is no way to discuss meaningfully the whole range of new technological developments now taking place or predict completely the future. I merely hope to draw your attention to certain phases of the technological revolution which is already underway and provide some sense of the impact these changes will have on our society and its educational system. Therefore, as examples, I will focus on just two areas of the new technology: 1) systems analysis and 2) cybernation.

Systems Analysis. Management has already invented technologies to carry on mammoth research and development programs. This technology is especially dependent on systems analysis, long-range planning, operations research and other sophisticated methods of attaining and evaluating efficiency. It was first applied to the development of strategic weapons, then to space exploration and now to undersea exploration. One partial but powerful expression of this approach is found in the program budgeting and planning method first used in the Pentagon and now, at Presidential insistence, being hesitantly and falteringly applied to activities throughout government agencies, including the Departments of Labor and Health, Education and Welfare. It is currently being used by the Rand Corporation under contract with the City of New York in a study of the nation's largest police and fire departments. Because systems analysis purports to – and sometimes does – provide a basis for demonstrating the cost compared to the benefits of alternative packages of projects aimed at particular programmatic goals, it permits in principle much tighter and efficient implementation, control and evaluation of large-scale social innovations. (Michael, 1966, pp. 4) There is no reason to believe that it will not be applied in the future to reorganizing transportation and communication systems, to city rebuilding and to new city

building, and *to planning and operating educational systems.*

Cybernation. Another recent area of technology with far reaching implications is cybernation, that is the use of automation and computers.

Diebold, the coiner of the term automation, provides a brief description of what changes the computer will bring into our lives. (1962, pp. 30)

If we can overcome our fears and put automation to work effectively – a big if – we will open the way to a world such as few can imagine. Here are samples of what to expect.

By Century 21, currency probably will be used only for incidentals. Instead of taking home a paycheck, we may have a central account to which our employer's computer automatically credits our salary. All of our purchases at stores, markets, theaters, restaurants, and so on, will be automatically debited to our account at the instant of purchase.

New systems for the handling of information will soon affect everyone. The library will become a central store of information which will be available at any point in the country by means of data-communications systems. When we need particular information, we will simply dial a code number, and information retrieval machines will project the material on a screen or produce electronically prepared copies.

Information-storage-and-retrieval systems will also be used in medical diagnosis and research. A running record of each patient's history, kept in electronic form, will enable doctors to spot disease symptoms or tendencies long before they could be discovered by conventional methods. If we become ill while traveling in any part of the world, a physician will be able to dial a record-storage center and in seconds have our complete medical history.

Perception, a pattern-recognition device now under development, can distinguish between letters of the alphabet, identify objects and recognize faces. Machines have been taught to play checkers and blackjack, and have defeated the men who taught them. The most revolutionary research in automation today is being done in what is call heuristic, or self-adaptive systems. Some of these machines are "goal-oriented" – they can be programmed for a certain goal, and they will keep trying new approaches until they work out the best one. They improve their own approaches as they go along and will be able to cope with entirely new conditions which may be unknown to the intelligence that built and programmed their electronic innards. Most of the publicity concerning heuristic machines has been devoted to their game-playing abilities, but much of the reseach being done here and in Russia is top secret. Both governments know that the next great scientific breakthrough might come in this area.

These machines have special importance in the space program. When the first unmanned spaceship goes to Mars, for instance, no one can predict all the conditions it will meet. But the spaceship's heuristic system could be given goals of landing, exploring and returning, and it would accomplish the mission in the best possible way, adapting itself to whatever conditions it would encounter.

Many other technological innovations are now taken for granted and are only awaiting financing and public acceptance. On the electronic highways of the future we may dial a destination and let our computer-controlled car pick the optimum route and do the driving. Teaching machines will pace a student's progress, diagnose his weaknesses and make

certain that he understands a fundamental concept before allowing him to advance to the next lesson. Computers will enable a businessman to simulate and test the alternatives of a decision before he actually enters into a deal. And the State Department will be able to feed the factors of ticklish international situation into a computer and learn the probable consequences to each of a wide range of decisions.

General Implications of the Knowledge Explosion and New Technology

There are many consequences which one can interpret as a result of the explosion of knowledge and accompanying technological revolution.

In the first place all of those whose work is not fundamentally creative are the potential victims of cybernation. So compelling are the economic reasons for its use that only a major social disaster will slow its usurpation of routine activities.

In the second place, in order to use computers effectively as tools in the instructional process as well as in other activities, it is mandatory that we speed our efforts to learn more about learning and teaching. James, Dean of the School of Education at Stanford, identifies the problem and the challenge when he says that "present applications of the new technology put the cart before the horse. Instead of the new education-industrial complex dumping $50 billion worth of junk on the education market; instead of money for machines, the complex needs to first spend a lot more time and money on the nature of the learning process." (Hanson, 1967)

A third consequence which needs to be considered is that our society's problems will become more complex, and we will, of necessity, have to use computers to simulate social and physical processes which an individual or group could not understand without the aid of systems analyses. We already have examples of this in the space program and the development of this country's weapons system. Increasingly, the proposed solutions to social problems will be statistical solutions, partly because the techniques for dealing with statistical data will be readily available.

There are, of course, inherent dangers in this approach. What worries me most is that when judgements are based solely on the ability to simulate reality and analyze it statistically, the human being – the point of the curve – can become an annoyance. We have to work hard to make sure that the emphasis on machines and man stays in balance.

A forth implication of the knowledge explosion is that as people and an electorate, we will be called upon to make judgements about increasingly complex matters. We already see them today in such issues as the Viet Nam war, the common market, nuclear testing, fallout shelters, space exploration, water pollution, civil rights and so on. But, at best, the most capable of men can fully understand only a small sector of the circle of knowledge applicable to such decision making.

As a shrewd observer of the American scene has stated it: "The nature of modern life calls for studies that are generalizable, that is, that can explain a wide variety of life situations. Such studies tend to be theoretical and abstract. But the more theoretical and abstract they are, the less suited for common education. What everyone seems to need is precisely what everyone is not equally able to learn." (Broudy, 1962)

It would seem, then, that as time goes on we will be increasingly confronted

with a paradox--that of gaining comprehension of the incomprehensible. The enormous complexity of social issues and the increasingly abstruseness of the techniques for dealing with them will confront education with its greatest challenge. How will we educate to make people comfortable with, sensitive to, and aware of these complexities? How will we teach people to understand their relationship to long-range planning? And how will we teach people to be comfortable with, indeed, to embrace change and the process of change?

Mead captures the educational implications of the new technology when she states, "...to the multiple functions of an educational system we must add a quite new function: education for rapid and self-conscious adaptation to a changing world." She further sharpens the problem by stating what she calls the "most vivid truth of the new age. No one will live all his life in the world into which he was born, and no one will die in the world in which he worked in his maturity." (Michael, 1965)

Very much the same point of view is expressed by Drucker when he says, "Since we live in an age of innovation, a practical education must prepare a man for work that does not yet exist and cannot yet be clearly defined." (Mead, 1959)

Obviously the larger educational task implied by such writers is only partially that of the schools and colleges. A visit to American business and industry will quickly show us that formal education is no longer the exclusive province of the American educational system. Programs, facilities, instructional procedures, outcomes and budgets provided for educational activities are now just as much the concern of business and industry. Those of us with direct concern for our educational system must accept the fact that our elementary and secondary schools and our colleges will be part of a complex of continuing education for a large majority of our people. The learning force will soon exceed the work force.

An extraordinarily important realization emerges from the notion of continuing education to keep up with rapid changes in all aspects of life. That is that no one will ever "complete" an education. We have had the concept of continuing education around for a long time but in former years this meant that an individual had responsibility to continue his personal development on his own. In the future he must find a formal educational structure available to him. Education must prepare him to take advantage of new opportunities, as well as help him to face the insecurities of the changing society promised him as a way of life. Sixty million jobs will change in character in the next generation. Six year olds now starting school can expect their vocations to change three times during their lifetime. (Silberman, 1961) Skills will obsolesce and facts will wear out at a more rapid rate. What can be most worth learning will be mainly the knack of learning itself.

There is another side to the matter. At the same time that we concentrate efforts on preparing people for productive places in our changing economy we must recognize that man as a worker is becoming obsolete. However the work of society may in the future be distributed, it is certain that most of the potential productive capacity of our population will not be needed to keep the economy functioning at a very high level. Under such conditions, a man's identity and importance will derive, not from the kind of work he does, but from the kind of life he leads. Education will thus have to include in its objectives not only preparation for a life

of work but also the primary work of life. Buckminster Fuller has put it very aptly in his phrase, "Learning a living."

The Explosion of Human Interaction

Education for "learning a living" is tied directly to the second explosion which has far reaching implications for education in the next twenty years: the explosion of human interaction.

The sheer growth and location of the population, the demographic characteristics of this country in the two decades ahead, will profoundly affect our educational system. We expect around 230 million people in the United States by 1975, about 250 million by 1980 – and a world population of four billion by 1977. By 1970 young people will make up about half of our population, and 1980 those over age 65 will have increased by almost 30% – unless the toll from smoking, auto accidents, etc., is unexpectedly high. By that time, too, approximately 80% of all Americans will be living in urban areas. Cities now separate will be merging into megalopoli stretching from Norfolk to Bangor, from Minneapolis to St. Louis, from San Francisco to San Diego. Thus, during this period the very idea of the city will alter as physical mobility becomes ever greater and communications ever more accessible. (Diebold, 1962, pp. 31)

Faster means of transportation and communication have already intermingled the ruralite with the urbanite, the northerner with the southerner, the free with the less free, the economically privileged with the underprivileged, the black with the white. The current situation was aptly described at the United Nations by Ambassador Adlai Stevenson shortly before his death when he said: "The world is now a crowded house." It indeed appears to be so. Everything we do is observed, everything we say is overheard. The walls are thin and the connecting doors are open. Opposed value systems and mores rub abrasively against one another, no longer separated by the traditional barriers of distance and time. Today what white Mississippians and Negroes in Detroit value and how they react as a result of these values matter tragically to all of us.

The world for young people too is crowded, perhaps even more so than for their elders. Travel, radio, moving picture, television, books, new families in the neighborhood from other sections and lands, "different" children who enroll at school – all bring into view of children and youth a wide range of choice in human behavior. Direct confrontation with this wide range of choices calls into question personal values and community mores.

General Implications of the Explosion of Human Interaction

Young people and adults need help now and will need help in the future in the development and clarification of values – that is, beliefs that are chosen after deliberation, prized, called upon repeatedly in everyday living and openly affirmed when challenged. It seems fair to state that the need for direct attention to values clarification and development in our schools and colleges will increase as our crowded house becomes more crowded and as our interactions become ever more complex. The educational system of the future, in addition to teaching how to use the new technology most effectively will have to develop effective means for teaching those human characteristics of brotherhood and empathy that will become increasingly

important.

As indicated earlier, the computer is critical for much of the physical and social systems management technology. And it can also provide the technology for teaching four and five years olds to read. Note, however, it does not provide teachers and parents with the moral and ethical wisdom to help these youngsters to interpret the significance and values inherent in what they read. This powerful technology for predicting and influencing behavior may come just in time to rejuvenate the democratic processes – or, irresponsibly applied, it may totally destroy them.

In summary, a look ahead to the next twenty years calls for a new emphasis on the learning needs of each individual. The one need all will share is to learn how to inquire – how to develop ways of knowing – and what is worth knowing. In a world rocked with change another learning will be most crucial. Individuals will need to develop a high capacity to adjust to changed circumstances – a high capacity to innovate. And last, but not least, in a computerized shrinking world, individuals will need to continue to learn ways to live together peacefully as human beings.

The Intellectual Personal Uniqueness of Human Beings

Let me now discuss the second source of knowledge--for use in guiding our decisions regarding educational personnel development in the years ahead--the *intellectual personal uniqueness of human beings.* We too often categorize people in terms of achievement scores, IQ's, Miller Analogies Scores, college boards, etc. We place human beings on a chart in various groups identified by a symbol and we send out these charts to other people to use to make judgements about the people listed. We know we can't really do this to humans--a person is a person--a subject, not an object. I use the terms intellectual personal uniqueness rather than individual differences to dramatize this fact.

We're all different in terms of what we know about any given subject matter; we're different in terms of our ability to think in the abstract about art, math, English etc.: We're all at *different levels in ability to think in the abstract* about any phenomona.

We're also *different in how we approach learning.* The psychologists refer to this as "learning style." Some of us can keep 4 or 5 ideas in order at any one time; others of us can keep only one thing in mind at one time. Some of us have to take longer before we embark upon a project than others do. Some of us can jump right into it. Some of us can learn things through manipulative means, non-verbal means, much better than we can through verbal means.

Let me give you a specific example of what I mean: Kodak is doing exciting things right now with inner city kids, these kids who are considered non-verbal (especially when judged by middle class teacher norms) are given 8mm cameras and all the film they want. Then they are freed to tell their stories through film. I wish you could see some of the creative films these kids have made. Experiments like this make me more and more convinced that if we can find the best way to teach people, we can help them learn. If we can find ways to meet each learner where he is, not only in terms of where he is in what he knows, but in terms of his approach to learning, we can make new discoveries that will "unlock" the world of knowledge for many children that we have failed in the past.

The third aspect of intellectual personal

uniqueness is that which the psychologists refer to as the affective domain. If we really believed what I'm going to say about the importance of personal feelings in the education of human beings, we would change our schools completely. Each learner and each of us in this room is unique in how he *feels* about what he knows, how he *feels* about what he needs to know, how he *feels* about the teachers who are teaching him, and how he *feels* about his peers. Everyone in this room knows that what is reflected back in the eyeballs of a person who's trying to teach us something has a tremendous influence on what we'll be able to learn in that particular setting. This point is vividly demonstrated in the book, *Pygmallion in the Classroom* (1968). It reports the studies that Rosenthal, a professor at Harvard, did in which he changed the records of a group of so-called "slow learners" and identified them as "late blocmers."

The teachers approached these kids in an entirely different way in terms of their expectations. Read the book and see what dramatic change occurred in their new supportive environment. One of the most meaningful learning experiences I have ever had was when I worked with a team interviewing 2,000 students who had dropped out of school. The overriding significant factor in the whole study, the basic correlation, was not with IQ or achievement; it was that the kids who dropped out didn't like themselves. They didn't like themselves and they didn't think their teachers liked them or that their parents liked them. If we really admitted the importance of the personal dimension in learning--human feelings--what impact it could have on the schools, and the way we prepare educational personnel.

Let me ask you a question--How many classes have you ever had in your own education where people just asked a question right out loud simply because they wanted to know something they didn't know? Have you ever been in a class where a student prefaced his question by saying "You know, I don't know a darn thing about this, but I'd really like to know something about it." How many of you have experienced a learning environment in which you and your classmates really revealed all the things they *didn't* know? In any of your graduate classes has any one asked a question that they didn't at least know enough of the answer to know that it was a so-called "good question"? A basic essential to the creation of a learning environment which is productive, one which starts with each person where he is, is the freedom to share what one does *not* know. If we build a whole system where a person can't admit where he is, then the system cannot work. Our schools are presently set up to produce "winners and losers". So many of our kids are doomed to failure before they start. We've got to change that if we really believe the schools' primary purpose is to help all the children of *all* the people to develop as unique human beings in terms of *their* capacity to grow.

According to recent equal education opportunities studies about 50% of the Negro children in our major cities in this country never complete high school. (Coleman, 1967) The National Advisory Committee on Mexican American Education reports that the average Mexican American child in the Southwest drops out of school by the seventh year. In Texas 89% of the children with Spanish surnames who start school do not complete the 12th grade. (Southwestern Cooperative Laboratory, 1968)

We have not yet developed a system of education which is accountable to the

client. As professional educators our clients ought to be each learner just as the doctor's clients are his patients. We should be held responsible for the intellectual development of each child just as doctors should be held responsible for the physical health of their patients. Because education is public, we have a responsibility to *all* children and youth. If 50% of our clients drop out or are pushed out, we have to begin to become professionally accountable for that. About two months before Senator Robert Kennedy was killed, I heard him express this challenge very dramatically to a group of school superintendents and board of education members. He said, "Look, if the children of all races in this country start the same in terms of their unequal abilities to develop and because of unequal access to opportunity to grow and 50% of the one segment of our society does not complete school, then we ought to ask some questions about it. If 50% of a doctors patients died we'd begin to worry about the competency of the doctor, we wouldn't keep blaming it on the patients all the time."

If we need more resources to do the job or we need to develop a new concept of schools and colleges, we must make the profession vital enough to demand these changes for the sake of *all* children and youth. The most vivid truth that should guide our action is that each human being is unique. Each is different in what he knows, how he approaches learning, and how he feels about himself and the world around him.

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THE UNIVERSITY OF TOLEDO MODEL PROGRAM†

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Occasionally or perhaps rarely when leafing through educational journals, one is intrigued by and attracted to a particular article through the use of an arresting, unusual title. Such was the case recently when I saw the title, "Let's Blow Up the Schoolhouse." Reading further, I discovered that the article attached to this revolutionary title was about an old subject which is constantly renewing itself to us--educational change. Although I was disappointed that the article didn't live up to its promising headline, the lead paragraphs did have some useful thoughts about change.

> If our schools as presently constituted are inadequate to the staggering burdens imposed on them by a groping society in quest of its own future--and they are--then those schools must be drastically, dramatically altered.
>
> If our schools are designed primarily to function within a steady state culture and to program children with that fixed culture for an unchanging world--and they are--then somehow they must be made to accommodate a world of quantum leaps--a world where a generation gap is now the span between freshmen and seniors in college. We must prepare young people for a world in the making. Our schools...must also be in the making--in the organic process of becoming.
>
> What is really being sought is not this particular change or that, but the chain-reacting, self-continuing capacity for change itself.*

Like the author of the previous quotation, American teacher educators have always been ready to talk about educational change, to extol new curricula and

† Project No. 8-9026, Contract No. OEC-0-8-089026-3310 (010), October 1968, U.S. Department of Health, Education, and Welfare, Office of Education, Bureau of Research.

*John A. Stanavage, "Let's Blow Up the School House," *Ohio Schools*. 47:13-15, 25, January 3, 1969.

methods, and to provide the appearance of positive reaction to educational innovations in the common schools, but when such efforts have run their course, relatively little accomplishment toward teacher education improvement has been visible. Teacher educators are basically conservative by nature and the general evidence from their efforts and the products of their programs indicates lengthy and deep-seated satisfactions with the status quo. Prevailing patterns of teacher education programs today are much as they were at the close of World War II with the general course of study providing attention to general education of a broad nature stressing Western cultural concerns, the usual professional courses (child development, methods, curriculum) accompanied by some student field experiences, and possibly some opportunity for limited subject matter specialization. The net result is and has been that teacher education programs and personnel are often rather pedestrian, appear incongruous in relationship to a modern technological society, and have not done the job expected or hoped for in terms of creatively educating the teachers of our children. And the most unfortunate aspect of the entire situation is that the young teachers subjected to such preparation go into our schools and practice for a year or lifetime from their limited and conservative teacher education base with only an occasional dose of in-service education thrown in for what good it may accomplish.

Testimony to the foregoing situation has been voluminous and continuous. We all remember the comments of some of the severest critics of teacher education such as Koerner and Rickover. More reasonable men such as Conant, Bush, Sizer, Denemark and many others have provided less biting but nonetheless straightforward cirticisms of teacher education. Ryan of the University of Chicago Graduate School of Education has summed it up neatly by stating:

> Few people are satisfied with the professional training given to teachers. Complaints come not only from elder statesmen and admirals but also from teacher educators and their students.
>
> Criticism from within the educational community is perhaps the more telling since it comes from the people who have to live with the results. The dissatisfaction seems to center on the relevance of present professional training to the daily work of teachers.*

No less prominent group than the Committee for Economic Development in its latest statement on American education has clearly pointed out,

> The future of the schools depends in large part on whether they can overcome in educational policy and practice what is frequently an extreme conservatism and a strong resistance to change. This depends in turn on whether they can develop a genuine openness to experiment and innovation.
>
> We are convinced that reconstruction of instructional staffs, instructional patterns, and school organization must lie at the heart of any meaningful effort to improve the quality of schooling in this country.
>
> The preparation of teachers should be

*Kevin A. Ryan, "A Plan for a New Type of Professional Training for a New Type of Teaching Staff," *The Teacher and His Staff-Occasional Papers* No. 2. Washington, D. C.: NCTEPS, National Education Association, Feb. 1968. p.l.

> geared to the major developments in educational research and to the improved staffing patterns of the schools. The schools need variety in the talent and functions of their teachers rather than sameness and standardization. They need teachers who are capable of grasping the value of new ideas and are able to move in new directions when the evidence warrents.*

Does all of this concern about educational change and teacher education automatically indicate that everything is wrong and nothing right with teacher preparation? The answer is obviously in the negative. We can all point to many teacher education improvements, even innovations, but the total concern for change in teacher education within and without the profession and literature on the subject does indicate that teacher education is in transition and is moving from well-known past beliefs and practices to teacher preparation programs based on new concepts involving different educational approaches which are more consistent with social and educational change than previous, piecemeal efforts.

The Bureau of Research of the USOE recognized these facts about teacher education change and teacher education transition when it decided over a year ago to inaugurate a multi-phase elementary teacher education project which would first provide designs for outstanding, or model, programs for the training of elementary teachers and eventually result in the implementation and operation of the best models produced. This project is being developed in three distinct phases. The first phase, which was announced October 16, 1967 and completed October 31, 1968, was an effort to design conceptual models which would result in "educational specifications for a comprehensive undergraduate and in-service teacher education program for elementary teachers."** The specifications produced were to be the blueprints for exemplary teacher training programs. The results of the research of this first phase have been published in two and three volume reports by each of the nine sucessful proposors and have since been made available to institutions interested in succeeding phases of the project and the public.

Phase II of the project is an effort to determine the feasibility of developing, implementing, and operating a model teacher training program based upon the specifications designed by one or more of the groups engaged in Phase I. Proposals are currently being developed for this study phase, and approximately ten institutions will be selected for feasibility studies with the total expenditure of funds again totaling nearly one and a half million dollars. The feasibility effort will provide analysis of resources and costs as well as appropriate administrative and management structures and devices needed in initiating, carrying on, controlling and evaluating the long term program of development necessary to implement a Phase I design or combination of designs. Phase II project work begins May 1, 1969 and will be completed December 31, 1969.

The final phase of the Bureau of Research teacher education project, Phase

*Committee for Economic Development, *Innovation in Education: New Directions for the American School.* New York: Committee for Economic Development, July 1968. p. 14.

**United States Office of Education, *Request for Proposals, No. OE-68-4.* October, 1967. p. 1.

III, will be the actual implementation and development of a model or design previously produced and analyzed in Phase I and II by one or more than one institution which graduates at least 100 elementary teachers yearly. Actually, the plan is to implement several models and at this date it appears that possibly three institutions will be involved and funded. This final phase will attempt to bring together through a few demonstration institutions the best elements of educational thinking, techniques and resources, well-funded and well-conceived, which could bring about a distinct improvement and up-dating of elementary teacher education. What is really wanted is a quantum jump in the field of teacher education. Bureau of Research plans concerning the third phase are incomplete at present and await the results of the Phase II feasibility study proposals which have yet to be selected and funded.

Each of the nine teacher education models which have been produced is distinct and unique and no two took exactly the same approach in the process of designing educational specifications. To really understand the philosophy and far-reaching goals of the USOE elementary teacher education project, adequate time is needed to examine rather closely the final reports of the nine projects. To begin this process, let me attempt giving you some flavor of the changes contemplated in the Bureau of Research teacher education project which has progressed through Phase I by telling you something of the Ohio model and what we conceived as change in elementary teacher education.

We began our model development efforts with the belief that existing programs of teacher education were not adequate to prepare future teachers for the changing conditions in American schools. We agree with Don Davies of the USOE that these changing conditions were the following:

1. Moving from a mass approach to an individual approach in education.
2. Moving from an emphasis on memorizing to an emphasis on learning how to think, how to learn, as well as an emphasis on the non-cognitive, non-intellectual components of life.
3. Moving from a concept of a school isolated from the community to a concept of a school that is in and of the community.
4. Moving from a fear of technology to utilizing machinery and technology for educational purposes.
5. Moving from a negative to a positive attitude toward children who are different.
6. Moving from a provincial perspective of the world and education to a multi-cultural perspective.
7. Moving from a system characterized by academic snobbery to one which recognizes and nurtures a wide variety of talents and fields.
8. Moving from a system based on serving time to one which emphasizes performance.

Because of the all encompassing impact of change in education, the consortium which developed our model chose to prepare programs which dealt with all of those groups of educational personnel who are actively involved in the education, induction, and support of new teachers. We called these groups the major target population for a changed program in teacher education. We identified them as: (1) Pre-service--Pre-school and Kindergarten teachers, (2) Pre-service--Elementary teachers (Grades 1-8), (3) In-service teachers (all levels), (4) College and University Personnel (principals and supervisors in elementary schools), and (6) Supportive Personnel (paraprofes-

sionals and teacher aides). For the same reason that existing plans of teacher education were not considered as models or limitations, we early state in our project report that the present structure of elementary teacher education is not considered a continued concept and local or national teacher education traditions are not maintained. Further, we strongly believed that any new and challenging teacher education model program that could come from our efforts could also result in corresponding changes and innovations in the elementary school setting where the model was to be applied and its products placed. Thus, we early abandoned the concept of teacher preparation for the elementary self-contained classroom and graded school and incorporated the idea of a multi-unit school and a team-teaching concept developed by the Wisconsin Research and Development Center for Cognitive Learning, called the Research and Instruction (R & I) Unit organizational pattern. The model we have produced is designed to prepare teachers for this type of elementary school which we think is an exemplary illustration of the elementary school of the future.

Our conceptual design for the project first involved a search for general goals of teacher education; second, the examining of these goals in five contexts (instructional organization - educational technology, contemporary learning-teaching process, societal factors, and research); third, the development of behavioral objectives for these contexts; fourth, the creation of educational specifications incorporating the behavioral objectives for each of the six previously mentioned target populations: and finally, the bringing together of these specifications into composites called model programs.

The statement of goals for the program of teacher education was adapted from the objective and comprehensive effort of the Committee on Quality Education of the Pennsylvania State Board of Education. These goals were submitted to a steering committee of outstanding authorities for modification, addition and in a sense legitimation. They received enthusiastic support.

Because an additional and continuing concern of the project was to accommodate the forces of change, it was decided to begin to refine the general goals by considering them from the perspective of five contexts. The aforementioned contexts represent the more important sources of change in teacher education today. An authority in each of the context fields prepared a position paper on his topic. Other knowledgeable persons in each context field were provided with these position papers and asked to react to them. These papers and reactions provided a rich source of data for the preparation of behavioral objectives.

The behavioral objectives were a result of the combined efforts of the project staff, consultants and an independent consulting agency, EVCO Basic Instructional Research Design in Albuquerque, New Mexico. The consultants and staff provided the knowledge of the content and EVCO provided the expertise in translating this knowledge into the form of behavioral objectives. This productive partnership generated 2,123 objectives.

Because we were attempting to develop a comprehensive program, the behavioral objectives were prepared for the six target populations concerned with teacher education within the five contexts. The process at EVCO was to secure a breakdown of each context into major subject areas which were futher divided into topics. Behavioral objectives were then

prepared for each topic.

Educational specifications were then formulated to implement the entire range of behavioral objectives. Each specification consisted of a behavioral objective or objectives to be implemented, the treatment to be utilized in accompanying the objective, materials needed, and the evaluation procedures to be applied to determine whether the objectives had been successfully achieved. Because of overlap, 818 specifications were able to accommodate the over 2,000 behavioral objectives. Specifications were prepared by the project staff, personnel from the Wisconsin R & D Center, MOREL (a regional educational laboratory), and consultants.

In order to deal with the 818 specifications it was necessary to process them in some way to permit selection, rejection, ordering and re-ordering according to a target population to be served. This was accomplished by a coding process which resulted in the major parts of each specification being reduced to an information form that could be contained on IBM cards. This made possible the use of a computer to secure quickly the identification of desired specifications as well as to provide summaries of information about them. In order to secure all of the desired information for each specification, it is, of course, necessary to read each "spec." However, it is possible to collect rapidly all specifications pertaining to a particular target population, a context, subject area, topics, treatment, type of evaluation, or material. Thus, there is no prescribed way of ordering the specifications. They can be ordered as a function of the progressive difficulty of content, ease of administration (that is, all activities to be performed in a field or the classroom could be grouped together), by a teaching method such as academic presentation followed by simulation followed by actual application or by some other method. The card deck containing the coded specifications can provide any user, who is able to state general goals and specified objectives for particular instructional efforts, the specifications relevant to his objectives and to reorder or re-sequence them on the basis of whatever criterion he wishes to utilize. Thus a process has been provided for the utilization of the product (specifications) from which teacher education programs for various target populations can be developed which can be limited to a few hours of instruction or extended into years of useful educational experiences. The process and the product are never static but always flexible and innovative.

Finally, a process of evaluation was selected for the Ohio design which was of prime importance because it is not only a guide for future planning but also serves to direct any implementation effort. Also, it was necessary to devise an evaluation model which would permit comparisons between the Ohio program and other strategies of teacher education. The model developed for the Ohio project has all of these requisite capabilities and more. The evaluation model in our design is basically a process of obtaining and providing information for decision-making which is continuous and systematic.

This limited account of the Ohio model provides a partial impression of what is intended as "change" in teacher education. A better understanding of the directions and conceptions on which the model is based can be found in the basic assumptions we hold about it.

Certain of these basic assumptions are implicit in my previous comments. For example, we considered five conditions of life and education of major importance to teacher education and these conditions we call the "contexts" of instructional organ-

ization, education technology, contemporary learning-teaching process, societal factors and research. We have assumed that it is not practicable in terms of elementary schools of the future, to prepare teachers for the outmoded self-contained classroom but rather to orient teacher training to a team-teaching type of elementary school organization. Elementary teachers who are to be involved with educational change must receive their training in connection with this type of school organization and practice. Our concern about six target populations for initial education and re-education efforts stems from the belief that all elements of the elementary education system must be given appropriate and adequate treatment to the best degree possible in each situation or limited, negligible change will result in teacher education curriculums and elementary education programs. Our strategy is an attempt to insure that new and retrained teachers will receive intelligent and sympathetic support in elementary schools, minimizing future risks of teacher failure and general educational unresponsiveness to change. The failure of previous attempts to change teacher education has occurred partially because of pre-occupation with pre-service educational populations rather than all populations concerned with schools.

Other assumptions can be made more explicit:

1. We assume that instruction in the elementary school will not be limited to traditional group activities but that individually guided instruction or a program of individualization will be further developed. It is essential for teachers to have preparation and proficiency in dealing with such programs.
2. We feel that the pre-school teacher needs to be more generally prepared in the subject matter of elementary education but that the elementary teacher must have basic teaching competence in the fields of language arts (reading), social studies, mathematics, and science with specialization in one of these fields of study. Unlike the pre-school teacher, the elementary teacher would not have preparation, as is the case presently, as a generalist.
3. We feel that the rapid development of educational technology and related materials for instruction needs a similar concentrated effort to train teachers accordingly. There has been insufficient use of the products of educational technology in schools and better use of television, computers, and other hardware or software products will find increasingly more usage in elementary classrooms when teacher training involves a full consideration of educational technology.
4. There now exists a great deal of information about the learning-teaching process which is not being effectively incorporated into teacher training programs. The development and use of behavioral objectives in our specifications puts the emphasis upon the outcome, behavior, and overt operational procedures by which specific behavior can be elicited. Teacher education programs and teaching need more of this orientation while still continuing a healthy respect for the developmental point of view.
5. We know by this time that teachers must be keenly aware of cultural differences which may be external to, but nevertheless have an effect

upon, the educational setting. The training of teachers with primarily a single, middle class orientation to the learner is no longer relevant in our multi-cultured, dynamic society Students must be inculcated with a degree of cultural relativism which obviously involves less emphasis on traditional foundation of education courses. A teacher education program for tomorrow must put considerable experiential effort toward helping all teachers deal effectively with cultural and societal factors.

6. We have blithely ignored most of the research in teacher education and relied upon philosophical assumptions and historical events to arrange teacher education programs. The time has come for teachers to become classroom researchers, to pay more attention to the research on teacher characteristics, and to become adept in assessing and evaluating teacher behavior and style. Research on cross-cultural and cross-national teacher characteristics suggests necessary personal and teaching experiences abroad which will help develop within teachers a world point-of-view on man and society. An emphasis on research related to teacher education is involved in our desire to extend the knowledge and vision of teachers about themselves and teaching.
7. The basic approach to training teachers will be through a multi-activity type program that emphasizes the combination approach of work and study, practicum and experience, and content and training. The traditional reliance on college course work separated from or accompanied by limited experience is not the program suggested by the Ohio model.
8. There will be considerable involvement of public schools as the physical facility for a considerable part of teacher education. Training colleges or universities and public schools will put forth a continuous cooperative and coordinated effort.
9. It is assumed that selection criteria will apply to pre-service programs developed from the Ohio specifications but in-service programs of any type, public school or college, will be applicable to present populations serving in these institutions. However, selective retention and dropout are not precluded after entry to any program.
10. A number of assumptions are apparent relative to college and university personnel. The development of the model program will begin with this population for considerable re-education and training is necessary. Obviously, more work in research and development and technology will be required as program implementation begins. Traditional departmental organizations and within-college structures will require modification, as it is assumed that a new program should have an operational structure fitted to it and not attempt to adjust the model to existing organizational patterns.
11. It is assumed that the length of teacher education programs based on the Ohio specifications will vary considerably with the type and implementation of any specific program. The present pre-service structure of four years can be used

as a starting point, but the specifications are flexible so that deviations can occur from traditional time schedules. We do not assume any particular academic degrees to be awarded with the specifications as this is left to the implementing institution as its option. We do assume that the pre-service teacher prepared according to our model will participate in a program of continuing education after entry into the teaching profession. Finally, we assume that the length of time any candidate remains in a training program is totally dependent on the capacity and ability of the individual to meet program requirements.

A summary report is never sufficient to provide all of the features of the Ohio model. The specifications as whole constitute an exemplary, not an ideal program. There are myriad approaches to developing specifications for behavioral objectives and all approaches cannot be specified in the Ohio or other models. We have tried to provide in each specification *not* a broad, general direction nor a highly specific, narrow treatment. We have tried to provide a succinct and consistent approach to an objective which is clear and practicable. The specifics possible beyond this are left to future program planners. We think our product can stand as an entity, but it is not intended to rule out the possible inclusion of other subjects and topics important to teacher education. We have tried to develop one strategy for making an immediate impact upon all of the principal participants in a program of teacher education. We have tried to avoid rigidity, to provide prescription with flexibility, and it is not intended that what has been created should remain the same. We do assume that our specifications are not "forever" the last word in teacher training. The procedures for implementing our model include provisions for prompt and objective feedback which has a self-correcting, bringing-up-to-date aspect. The opportunity is present for a teacher education program to become a changing instead of a static process. Hopefully, our teacher education model should become self-renewing and constantly *becoming* an outstanding program even though at any one point in time the specifications and associated elements in *being* should be relevant and effective.

The efforts of our research team and those who prepared the other eight models should rate a title like "Let's Blow Up the Schoolhouse." We have tried to "blow up" teacher education as it is now established and practiced. A cordial invitation is extended to each and every one of you to join a purposeful, promising rebellion.

THE FLORIDA STATE UNIVERSITY MODEL PROGRAM†

G. Wesley Sowards
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This model program represents the efforts of an interdisciplinary team to design a preparation program for elementary teachers which will meet the expectations of society and the demands of the school in 1978. It provides specifications that should be helpful to the designer of new, forward-looking teacher education programs.

The model program described in this report is characterized by a number of unique features:

1. *Utilization of performance criteria.*
   A series of experiences designed to enable trainees to meet stated performance criteria will be developed to replace formal courses.
2. *Individual progress rates.*
   Trainees will be permitted to move from one experience to the next when they have demonstrated the ability to satisfactorily meet performance criteria.
3. *Immediate application of theory to practice.*
   Trainees will have an opportunity to try out new theoretical learnings about teaching immediately through extensive use of small to large scale teaching activities.
4. *A repertoire of technical skills.*
   Trainees will be taught the technical skills of teaching and will be helped to integrate these into a total teaching performance.
5. *Preparation extended into initial teaching years.*
   An in-service phase, implemented jointly by the preparing institution and selected school systems, is an integral part of the total model.
6. *Computerized management control system.*
   A management control system utilizing a computer will be used to monitor individual trainees' progress and to make information available to staff

† Project No. 8-9021, Contract No. OEC-0-8-089021-3308 (010), October 1968, U.S. Department of Health, Education, and Welfare, Office of Education, Bureau of Research.

and trainees as required.

7. *Faculty development and utilization.* The need for faculty retraining consistent with the demands of new roles in the model is recognized and provided for.
8. *Selection of trainees for preparation.* A direct effort is made to describe a selection system reflective of the performance criteria deemed necessary for teaching.
9. *Acceptance of specialization.* The desirability and necessity for specialization in elementary school teaching is accepted and planned for in the model.

RATIONALE

The rationale for this model program is based upon:

1. Predications of what society and education will be like by 1978;
2. Inferences about the nature of teaching and the role of the elementary school teacher by 1978; and
3. Implications for the preparation of elementary school teachers.

At best the prediction of things to come is risky. Assuming the absence of any catastrophe which would block the forward thrust of our national progress, however, certain specific predictions relative to the preparation of elementary school teachers can be made.

Predictions for Society by 1978

Our predictions for society by 1978 are:

1. The trend toward urbanization will be accelerated.
2. Traditional wisdom and values will be increasingly challenged and the voices of protest will demand public response.
3. The identity of the individual will merge increasingly with that of one or more groups.
4. The factors which tend to alienate young people as a group will continue to operate.
5. Political issues will increase in complexity so that sounder judgment and greater integrity will be required of both citizens and leaders.
6. A massive effort will be made by the federal government to alleviate social ills.
7. The influence and pervasiveness of multiple mass media will keep a broad range of issues before the public.
8. Science and technology will continue to be dominant forces in our lives, creating problems and offering solutions to problems over a wide front.
9. The international character of life will influence social, political and economic affairs in a striking way.

Predictions for Education by 1978

Our predictions for education by 1978 are:

1. Society will make increased demands upon schools and colleges to fashion programs to meet the needs of all of its people.
2. The fact that education will be increasingly society-oriented will aggravate the tension between educators and the general public.
3. Education will meet society's demands through increasing attention to the individual.
4. Each major level of organized education will see itself as capable of managing its own program planning, and teachers at each level will seek

autonomy over a greater range of matters important to them than ever before.
5. Curriculum developers in elementary and secondary schools will try to overcome extreme separate-subject-centeredness and move toward a more interdisciplinary design.
6. Schools, especially in the inner city, will have to relate more directly to the total environment.
7. Emphasis will be placed on relevance in learning.

Inferences about Elementary School Teaching by 1978

Our inferences about elementary school teaching by 1978 are:
1. Only broadly educated persons of high ability will be able to make the difficult decisions required of elementary school teachers.
2. The emerging role of the elementary school teacher will require depth of study in at least one academic area and competence in employing a wide range of teaching strategies.
3. The elementary school teacher will have to be able to work as an effective team member with other professional and para-professional personnel.
4. Initial training requirements will call for a pre-service – in-service continuum of experiences.
5. The elementary school teacher will need to view the elementary school as an institution in almost continuous transition and come to expect and cope with educational change accordingly.

Task Analysis of Teaching

The decision to use a systems approach in determining the specifications for this model training program required a more careful and detailed analysis of the component behaviors in teaching than these predictions and inferences provided. Therefore, a task analysis of teaching as forecast for 1978 was undertaken. Four essential teacher behaviors resulted from this:

1. The teacher will plan for instruction by formulating objectives in terms of behavior which is observable and measurable.
2. The teacher will select and organize content to be learned in a manner consistent with both the logic of the content itself and the psychological demands of the learner.
3. The teacher will employ appropriate strategies for the attainment of desired behavioral objectives.
4. The teacher will evaluate instructional outcomes in terms of behavioral changes.

These behaviors are clearly interdependent and they are directly concerned with instructional-curricular functions. Still, only the behaviors which have to do with employing teaching strategies specify interaction with the learner. Students can be active in the formulation of objectives, in content selection, and in planning some and undergoing nearly all kinds of evaluative activities, but the teacher behaviors required for competency in dealing with objectives, content, and evaluation are primarily analytical skills rather than interactive ones. The component behaviors in strategy tasks involve interacting with pupils as they deal with content and material which will produce and reinforce appropriate learning behavior.

The task analysis engaged in did yield a

fifth category of teacher behavior, but of a somewhat different order than the four already mentioned. This fifth dimension of teacher behavior is stated as follows:

5. The teacher will demonstrate the competence and willingness to accept professional responsibilities and to serve as a professional leader.

This behavior, too, is attended to in the model program. It is felt that this dimension of teaching behavior will be of the utmost importance by 1978.

THE CURRICULUM

A three phased program, consisting of an underclass phase, a pre-service phase, and an in-service phase, was designed to develop the behaviors outlined above.

Underclass Phase

The underclass phase of the program, which represents what would normally be the first two years of college, concentrates mainly on general education. The stand has been taken that the elementary teacher by 1978 must be a broadly educated person. The underclass phase of the program is perceived as making a major contribution to that requirement for the trainees. The underclass phase of the model will also incorporate pre-professional studies to include work in the behavioral science, and an early awareness-involvement program designed to inform prospective teacher candidates about the role, demands, and rewards of teaching, and to provide them with a basis for making a commitment to the preparation program and to service in the profession.

Pre-Service Phase

The pre-service phase of the program begins after admission to the program, usually the beginning of the junior year, and continues through the completion of the bachelor's degree and the granting of provisional certification. The amount of time actually spent in the pre-service phase will vary from individual to individual. Emphasis during this phase will be on professional preparation; i.e., undergoing experiences designed specifically to prepare the trainees to fulfill the professional duties of teachers. Candidates will also engage in study to develop an area of academic concentration and to pursue elective interests.

Built on the five teaching behaviors identified earlier, success in the pre-service phase is dependent upon the ability of the trainee to state objectives, select and organize content, utilize appropriate strategies, utilize evaluation skills and techniques, and demonstrate a willingness to provide leadership and professional responsibilities consistent with stated performance criteria.

In-Service Phase

The in-service phase of the program will begin with the awarding of the bachelor's degree and extend through two school years and three summers, culminating in the master's degree and full professional certification. During the academic years, the trainees will be employed as teachers, with some time set aside for the study of problems encountered in the teaching environment. Three summers will be spent on campus. The goals to be achieved in these summer sessions are: to extend systematically the trainees' competence in areas such as the psychological, sociological, and philosophical foundations of

education; to help them to become more aware of and competent with the several dimensions of professional leadership responsibilities; and to enable them to pursue an appropriate area of specialization from the point of view of role differentiation. A part of each summer, and especially the first one, will be devoted to preparation for the upcoming teaching assignment in the schools.

It is planned that the university will assume a major role along with the public school system for planning and executing the in-service phase of the program during the two academic years the trainees are teaching. The university will not attempt to dictate the nature of the program, but will rather enter into a cooperative arrangement with the local schools system for planning a program appropriate to the needs of the local school system which at the same time will be consistent with the goals of the model program. The university will commit itself to provide an appropriate share of human and financial resources for this part of the in-service phase.

Specialization

There is a specialization dimension in the model program, too. Overall, the program is designed to prepare teachers to work with pupils who range in age from three through about thirteen. There will also be opportunities for some work in all of the subject matter areas normally encompassed in the elementary school curriculum. Thus, all teacher candidates will be helped to develop a common general background relative to content areas and understanding of elementary school age pupils. However, to provide the level of competency which will be needed by the teacher in 1978, three kinds of specialization will be provided for in the program. Each teacher candidate is expected to make a decision about these specializations.

First, trainees will select the age group with which they want especially to work. Since the emphasis in the program will be on the continuity of programs covering the complete range of ages, there will not be rigid, artificial divisions of the age groups. Two broadly defined age groups will be used: Pupils ages three to eight or nine (or early childhood), and pupils ages eight or nine to about thirteen (or later childhood). The choice made will be reflected in the nature of the training experiences provided for the candidate.

The second area of choice for specialization will center on an academic subject. All trainees will have a reasonable knowledge of each of the subject matter areas included in the elementary curriculum, but they will be expected to select at least one area for special study. It is expected that this area will be an extension of study begun in the underclass phase.

The third area of specialization will be concerned with differentiated teaching functions. The equivalent of one summer during the in-service phase will be devoted to role differentiation. Care will be taken to ensure that each trainee has a clear understanding of such current and emerging roles in education as programmer, media specialists, and content area resource teacher.

This program will have enough flexibility to permit other specialist variations. For instance, a trainee could make a specialty of becoming a master teacher in an inner-city school, or a master teacher with exceptionally able children, and the like.

Portal Schools

At first, a university will establish close

working relations with a few school systems. Further, most of the resources of the university will be centered on those school building units within these school systems that have agreed in advance to absorb into their faculties large numbers of beginning teachers who have just completed the pre-service phase of the model program. Each of the cooperating school systems will be asked to designate one or more such elementary school units as "portal schools." This term is appropriately descriptive in that such schools will mark the transition between the pre-service and the in-service phases of the model program and will be the gateway for entry of teachers into the teaching profession.

Although the nature of the portal schools will vary among school systems, they will have some characteristics in common. First, principals and other status leaders in these schools will be favorably inclined toward innovation. Second, they will use some of the "new" curricula that have been developed in such areas as mathematics, science or social studies. Third, they will be employing organizational arrangements that include the utilization of para-professionals and teacher aides, some differentiation of roles among teachers, and a modular schedule. Fourth, these schools will make considerable use of new teaching media. In a general sense they will express, by becoming a portal school, a willingness and an interest to participate in a variety of ways in the full sweep of the model teacher education program, including both the pre-service and in-service phases.

Functions which portal schools will serve in the total model program can now be visualized:

1. They will insure an easy transition for trainees from a shielded position in the university pre-service phase to a fully responsible teaching position in the schools in the in-service phase.
2. They will make it possible for the in-service phase to operate in school situations totally in harmony with the goals of the model program.
3. They will be useful in providing feedback to determine further needed changes in both the in-service and pre-service phases of the model program.

In turn, they will serve cooperating school systems in specific ways:

1. They will provide a supply of teachers, through the staff associate role and the intern group itself, that can be used as leaders in other schools within a school system.
2. They will constitute demonstration centers within school systems for the promotion of change.

Every effort will be made to place all trainees in portal schools when they complete the pre-service phase. A university will need to encourage each school system with which it has developed close working relationships to add portal schools as the numbers of trainees completing the pre-service phase of the program increase.

As now planned the in-service phase will operate in portal schools somewhat as follows: during the latter part of the first of the three summers in which the graduates of the pre-service phase will be enrolled at the university, the staff associates and the principal from a given portal school will come to the university for joint planning with model program faculty and the group of trainees who will teach in that portal school during the following academic year. Together, they will plan for the teaching assignments that

all will carry during the following year, will select and organize teaching materials to be used, and will determine the way they will work on instructional problems that arise during the year. Further, the design for such differentiated role assignments as will be necessary to free the in-service trainees to carry a reduced teaching load will be carefully explained.

During the first school year the trainees will participate in the in-service program planned for the building unit, and in addition, will work with their university counseling professors and portal school staff associates in a further refinement and synthesis of the instructional behaviors developed during the pre-service phase. At least once during the first year trainees will return to the university campus for a general conference of first year teachers for several purposes, including feedback on the operation of the program.

As the program moves into full operation, the proportion of teachers in the portal schools who will be completing the model program will gradually change. During the first year of operation of a portal school, about one-third of the teachers in it will just have completed the pre-service phase of the model program. During the second year, this one-third will stay as second year teachers, and another third will be added, as first year teachers, from those then completing the pre-service phase. In the third year of operation of a portal school, the one-third of the faculty who have now finished the second year of the field work part of the model program and have been fully certified as teachers will be reassigned to other elementary schools in the system. Their places will be taken by trainees who have just finished the pre-service phase of the program. The one-third who have finished the first year of their two year field work assignment will remain in the portal school.

More than one course of action may be followed in relation to the one-third of the portal school faculty made up of experienced teachers from the local school system. All of them may simply remain in the portal school for another year. Or, some of them may stay on while others are rotated out for new school assignments, to be replaced by other teachers from the system. Once the portal school arrangement is fully operative it will be most usual to leave an experienced local teacher in a portal school for about three years and then intentionally reassign him for a teacher-leader role in another school. Thus the cooperating school system derives two kinds of teacher in-put from the portal schools: They have new, fully certified teachers for assignment, and they have experienced teachers to be reassigned after having undergone a rather unique professional growth experience. By following such a procedure it will be possible to assure a defensible balance in portal school faculties on the factor of teaching experience, and to guarantee that teachers other than model program graduates will be included in the faculty.

THE ON-CAMPUS PROGRAM

As stated earlier, the in-service phase will include three summers on a university campus in addition to two years of teaching in an elementary school. The latter field work portion of the in-service phase is designed to improve teacher competence by focussing on practical problems in the teaching environment, and provides for released time from classroom teaching responsibilities to do this. The on-campus portion of the in-service phase is designed to add to competence

through a more systematic study of matters seen to relate to the higher levels of professional skill envisioned for the graduates of this model program.

Specifically the three summer sessions will be used to accomplish three major objectives: (1) to provide a more rational basis for engaging aspects of professional education, (2) to supplement reality experiences undergone while teaching in the schools, that relate to the behavior broadly classified here as professional responsibility, by studying political and sociological aspects of the teaching profession, and (3) to provide opportunities to pursue various forms of specialization in elementary school education beyond that available in the pre-service phase of training. In addition to these three major objectives, some time each summer will be given over to planning for trainees' teaching assignments in the schools for the following year. This will be especially true in the first summer.

The program during each of the three summers will be designed to contribute to all three of the above objectives. The accomplishment of each is somewhat experience-related; work engaged in will be the more meaningful when it can assume that trainees bring certain organizers to it gleaned from their having served as regular classroom teachers in the schools. This is true for all three of these goals. What can be accomplished in each successive summer session will increase as a function of the added experience which the trainees will have had and the study they will already have completed. Logically the third summer session should make possible the most intensive and satisfying summer study experience of all. The seminar format will be used each summer for carrying on the program. Counseling professors and staff associates from the portal schools will staff the seminars.

The summer programs will meet the first objective, that is, a systematic study of selected aspects of professional education, through seminars in such areas as history of education, philosophy of education, educational psychology, educational sociology, statistics, and measurement and evaluation. Each trainee will study in at least one of these areas each summer.

The summer sessions will be seen as of major importance to the realization of the second objective, that is, the development of the teaching behavior referred to here as the willingness and ability to become a professionally responsible teacher. Only a beginning is made on this behavior in the pre-service phase. The essence of the behavior--the way a teacher works with his colleagues at the local, state, and national levels; the attitude he takes toward change and innovation in education; the accomodations he is willing to make in the interest of the profession and the general welfare--seems to require some experiential base in teaching for its acquisition. But, to a degree, its acquisition is based on insights that cannot be attained through experience alone. Thus, each summer there will be seminars which deal with such things as the status of the teaching profession, the changing image of the teaching profession, the changing roles of teachers, administrators and supervisors in decisions of a wide ranging sort in schools, the great variety of professional organizations and the functions which they serve, the organization and operation of state departments of education, and the relationship of the teaching profession to labor, business and the general public.

The third objective, namely the furthering of training toward various specialized career opportunities in elementary education, will also be an important one in the

summer sessions. To an extent, trainees will have been asked to make a limited specialization choice in the pre-service phase of the program. It will be remembered that each will have been asked to express an age-group preference for teaching, and each will have developed at least one subject-matter area of concentration. With teaching experience and with added awareness of the emerging organizational plans for carrying on elementary education, it is expected the trainees will want to avail themselves of the opportunity to pursue further a specialization. For many this may take the form of added specialization focussed on an age range of children (very young, young, older) or on a subject matter area started in the pre-service phase of training. For others it may take the form of specialization to work with a particular type of child (slow-learner, gifted, disadvantaged). And for still others it may center on differentiated roles that are only now beginning to be defined in elementary education. In mind are such specializations as director of a building unit learning center, or as a diagnostician in schools committed to individually prescribed instruction, or as a remediation person for work with children who are in trouble in their learning, or as the leader of a team of teachers, or as a trainer of teachers in a role like that suggested by the staff associate assignment in this model program. Whatever the choices may be, seminars will be designed to clarify the demands of the selected specialization, and either to offer or direct students to the further training required by it.

The satisfactory completion of the work outlined for the three summer sessions, and satisfactory performance in the two-year field work program in the schools will culminate for the trainee in the receipt of the master's degree from the preparing institution and a recommendation to the state department of education that the candidate be issued full professional teacher certification.

MASSACHUSETTS MODEL ELEMENTARY TEACHER EDUCATION PROGRAM†

Dwight W. Allen and James M. Cooper
University of Massachusetts

The University of Massachusetts' Model Elementary Teacher Education Program is an attempt to institutionalize change through a thorough analysis of educational roles, tasks, structure and objectives. It is based on seven over-riding assumptions.

Change of Teacher Role

The role of the elementary school teacher is changing and will continue to change in the future. We must prepare teachers for change and not stability. The concepts of performance criteria, multiple instructional routes, differentiated staffing patterns, and continual inservice training programs appear to offer a meaningful approach to education in the future.

Performance Criteria

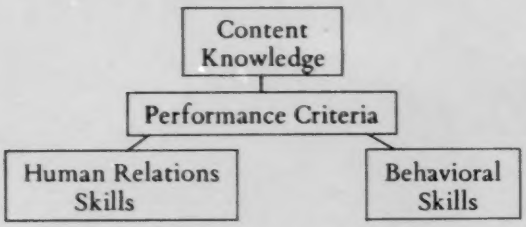
Specific *performance criteria,* based on an analysis of knowledge, skills, and attitudes in the human relations, behavioral, and content areas should be identified to provide a flexible basis for change. When the trainee meets the specified criteria requirements, he will have completed the program, regardless of the length of time enrolled. Thus, variable entry and exit points in programs will occur.

The formulation of performance criteria requires the specification of instructional and program goals in terms of behaviors to be exhibited by the trainee when instruction has been completed. Performance criteria, as we have defined them, are essentially behavioral objectives. They state the behavior expected of the teacher, under what conditions the behavior will be performed, and how the behavior will be evaluated. In addition, at least two instructional alternatives are provided for each performance criteria. Careful formulation of performance criteria liberates the planners from describing the program in terms of traditional

† Project No. 8-9023, Contract No. OEC-0-8-089023-3312 (010), October 1968, U.S. Department of Health, Education, and Welfare, Office of Education, Bureau of Research.

"courses." Rather it is recognized that there are alternative paths to reaching many of the criteria. The development of meaningful criteria and alternative paths for meeting these criteria has been of central concern to the architects of this program.

Performance criteria have been developed in three broad conceptual areas related to teaching. (1) content knowledge, (2) behavioral skills, and (3) human relations skills.



Content Knowledge. The restatement of content requirements from course requirements for a specified period of time to performance criteria which emphasize *ability to perform* was the major thrust in the planning stages of METEP. It is believed that recognition should be given to the fact that content knowledge is derived from many sources, formal coursework being only one.

Content knowledge is defined to include the depth and breadth of content most often seen as deriving from undergraduate liberal arts courses as well as the kind of content knowledge most often associated with that acquired within a School of Education. The latter is seen as a logical extension of the former, inseparable, but focused on questions of relevance and conceptual organization for pupils at the elementary level.

Behavioral Skills. One of the basic goals of the teacher education program is the development of technical skills of teaching. The basic premise of the technical skills approach is that much of teaching consists of specific behavioral acts. If skills and behaviors which teachers perform often in the classroom can be identified, different training protocols or established procedures and techniques can be developed in order to produce proficiency in their use. In other words, much of the complex act of teaching can be broken down into simpler, more easily taught skills and techniques.

One of the main components of the proposed teacher education program will be the implementation of microteaching in order to train prospective teachers in the technical skills which have been identified.

Human Relations Skills. Human relations is not a mysterious activity. Rather it is a codifiable set of behaviors which describe what goes on inside a person or between people. Thus, an individual thinking about himself or simply sitting by himself is engaging in human relations behavior. Two individuals meeting in an interpersonal interaction are engaging in human relations behaviors. School classrooms or group dynamics sessions are situations in which an awesome number of human interactions are going on. In short, any human behavior or behaviors engaged in intrapersonal or interpersonal activities represent human relations behaviors.

Human relations has been defined in the past almost always from a value framework. Somehow, human relations is seen as a "good" thing. Thus, traditional definitions of human relations tend to center on what should be rather than what *is*. By doing so, human relations experts have tended to confuse the present with future goals. The aim in this proposal is not to avoid the value issue of what human behavior should be, but simply to report what is actually present

so that better specification of future goals may be possible.

The Model Elementary Teacher Education Program does have many specific value commitments as to the type of human behaviors considered desirable for elementary teachers. Some of these are well known constructs such as warmth, critical thinking, openness, and consciousness of culture differences. These concepts, however, have been defined within behavioral terms and specified so that it is possible to teach these behaviors directly instead of by admonition, example, or as is done more commonly, by chance. Some new constructs such as attending behavior, decision process, and the physical system are introduced by adding more precise definition of human relations behaviors. Whenever possible human relations behaviors have been organized in a hierarchical structure so that the teacher trainee increasingly learns how to integrate old behaviors into new patterns.

Specialist - Generalist. The performance criteria in each area are defined whenever possible, in a hierarchical order from the simple to the more complex. Note in Figure 1 that the words Generalist and Specialist appear along the vertical dimension of the figure. The teacher trainees would have the opportunity to decide if they want to specialize in a particular area or to be a generalist elementary school teacher with certain levels of competency in each of the areas. If a trainee elects to specialize in science, for example, he would be required to meet certain minimal criteria in the human relations and behavioral areas, a high level of criteria in the area of science as well as defined minimal levels in all of the other areas. (See Figure 1) Requiring every teacher, whether he is a generalist or a specialist, to meet a minimal criteria level is a value judgment with which some teacher educators may not agree. The rationale for this requirement is our belief that every elementary school teacher should know at least something about the various areas of competency represented by a differentiated staff, if for no other reason than to improve communication and open-mindedness among the teachers. This decision is an arbitrary one and any institution planning on implementing this model would have to decide this issue for itself.

It should be noted in Figure 1 that the areas of competency are not closed figures, but are open at the top. This symbolizes the fact that in any one area a person could spend a lifetime and not be able to meet all the possible criteria which could be written as more information and skills become known and developed. It should also be noted that there are some blank off-shoots from the main line. These represent the other areas of competencies which can be developed as the elementary school changes.

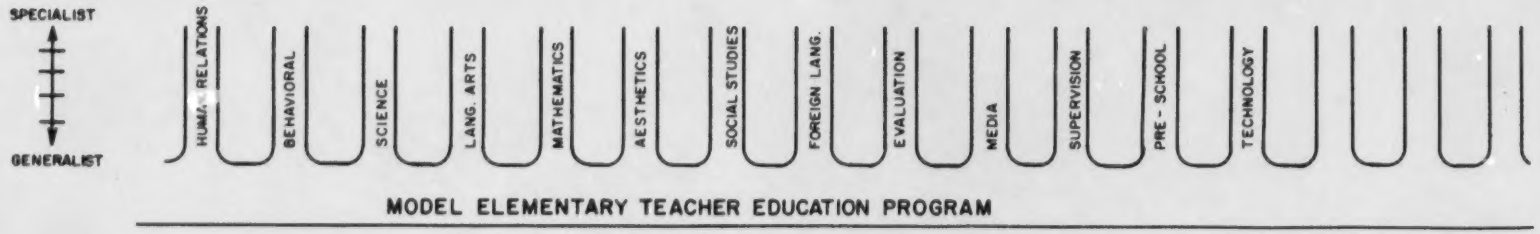
Differential Staff

Elementary school staffs will begin to differentiate their roles as teachers, thus requiring personnel with different competencies in new and different areas of specialization. Special consideration of differential staffing seems essential in the schools of the future.

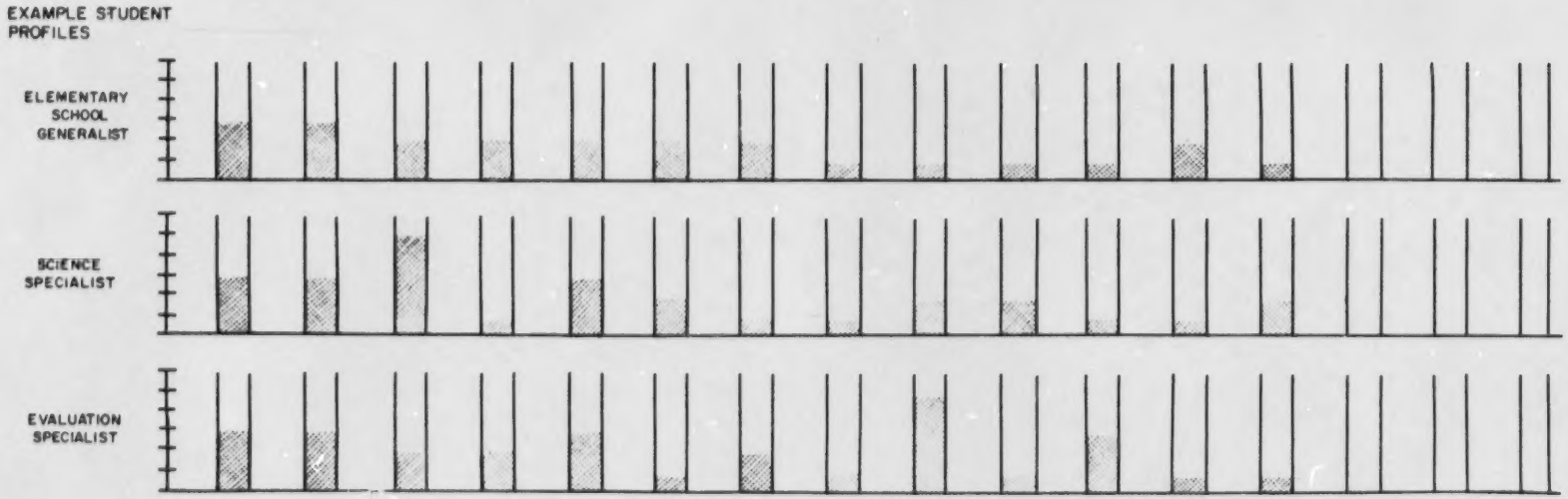
Multiple Strategy

Since there is no real evidence of the efficacy of any one major strategy of teacher training, this program includes as many widely differing overall strategies as possible in order to provide for examination of training consequences, for insight into relative training efficiencies, and for discovering relative acceptance and ap-

FIGURE - I



MODEL ELEMENTARY TEACHER EDUCATION PROGRAM



preciation of the processes by trainees.

Diagnosis and Evaluation

On the assumption not only that each trainee's strengths and weaknesses will differ but also that they will change during the program as a desired consequence of training, one major goal is to provide continuous diagnosis of the needs of each trainee and constant evaluation of the program components designed to meet these needs. Cronbach's concept of Aptitude-Treatment Interaction as an important research component of the program.

Program Alternatives

As a consequence of the above goal, one of the most important emphases throughout planning will be the development of multiple program alternatives, so that there are never fewer than two alternative and instructional paths to the same objective.

Post-graduate Follow-up

In most teacher-training programs the university's commitment ceases upon graduation. The graduate rarely receives diagnostic help, but instead is merely evaluated. It is the belief of the designers of this program, on the other hand, that a teacher's training never ends, and therefore a closely knit relationship between preservice and in-service training will be developed. The resources of the University, both technological such as videotape, and human such as supervisor, will be systematically made available to the graduate. In addition these same resources will be made available to other teachers in this area.

SUMMARY

Crucial to the implementation of a performance curriculum is an organization which gives coherence and structure to an educational program. Traditional school and credit offerings give no guidance in this regard. Systems analysis was found to offer a set of basic understandings which provide a useful and meaningful organization of the many diverse elements of a teacher education program. This approach was taken to organize, manage, and evaluate the program.

The METEP is interested in producing the fully human teacher, a person who meets the human criteria of warmth and human understanding, but is also capable of rigorous thinking, is in control of his own behavior, and is in a constant pattern of growth. These are high objectives for teacher training, but it is believed that education, psychology, philosophy, and behavioral technology are at a stage whereby the effectively trained teacher can now be a human relations expert in addition to having content knowledge and presentation skills.

THE MICHIGAN STATE MODEL PROGRAM†

John E. Ivey, Jr. and W. Robert Houston
Michigan State University

A changing society requires comprehensive changes in its educational system. The young, rapidly growing disciplines among the behavioral sciences provide systems of knowledge and inquiry which are relatable to the task of building a suitable teacher preparation program for elementary education. The Behavioral Science Elementary Teacher Education Program (BSTEP) is a comprehensive program based on the content and modes of inquiry of the behavioral sciences.

The development of such a program model requires the resources of an extensive professional team. Theoretical constructs must be translated into working models. More than 150 professional people contributed their time and effort to the development of this model. Seven colleges in Michigan State University cooperatively projected and developed materials for the program: Arts and Letters, Communication Arts, Social Science, Natural Science, Home Economics, Education and the University College.

Teams of educationists and scholars in the natural sciences, social sciences, and humanities worked closely together to integrate the program. While the product of their work is extremely important, the dialogue established between professional educationists and academic disciplinarians is even more significant. Interest far beyond that required by their formal commitments was exhibited by team members through their work.

Objectives and Rationale

The teacher preparation model with its detailed educational specifications is designed to achieve three major objectives:

1. A new kind of elementary school teacher for the nation's schools--one who is a basically well-educated person who:
   a. Engages in teaching as clinical practice,

† Project No. 8-9025, Contract No. OEC-0-8-089025-3314 (010), October 1968, U.S. Department of Health, Education, and Welfare, Office of Education, Bureau of Research.

b. Understands human learning, its capacity and its environmental characteristics, and
c. Assumes a role as a responsible agent of social change.

2. A systematic introduction of research and clinical experience into the decision-making process as a basis for continued educational improvement.
3. A new kind of laboratory and clinical base upon which to found undergraduate and in-service teacher education programs.

The major disciplines included under the rubric of behavioral science are anthropology, sociology, social psychology, psychology, economics and political science.

Another concept of particular importance to the professional teacher envisioned in the program is *clinical behavior style*. A step in the direction of professionalizing education is the regularizing of the behavior of practictioners. The term, clinical behavior style, denotes the particular and stylized set of behaviors and mental processes of a practitioner who has been specifically trained to utilize his client-related experience as a continuing learning experience through which to improve his professional skills and increase his knowledge. The clinical behavior style appropriate for a professional teacher consists of six phases: describing, analyzing, hypothesizing, prescribing, treating, and observing and evaluating consequences. The last activity, observing and evaluating consequences of the treatment administered, in turn leads to the first, describing the changed situation, to begin a recycling of feedback.

Undergraduate Program

The teacher preparation program built upon the principles and techniques of the behavioral sciences demands an interdisciplinary approach. Each branch of knowledge contributes its own unique content and modes a inquiry to the total program and as a result the student experiences the comprehensive character of organized knowledge as it relates to human behavior.

Explicit content and instructional recommendations for implementing the program are presented as short, single-purpose experience modules. Each module is directed toward the accomplishment of a particular behavioral objective, is reported and filed in a uniform manner, and can be used for individualized instruction. These modules are grouped into clusters which, for purposes of administration and communication to the academic community, are described as "components."

The modular approach implements the particular values expressed through this project:

1. The value of specifying behavioral objectives
2. The value of precise description of instructional experiences
3. The value of multiple-path programming to provide for the specific needs of different trainees
4. The value of providing for curricular change through continuous testable small-scale alterations rather than sporadic general upheaval.

More than 2700 modules were written and included in the program. These modules have been stored in a specially designed computer-processed information retrieval system, and can readily be retrieved in their most current form for analysis, revision, or removal.

Five major curricular areas are explicitly described in this model. *General-Liberal Education* provides a broad basic

core for the program. Students learn to understand the role language plays in a society, to comprehend the physical and biological aspects of the world, to understand differing cultures, to become more sensitive to their own role in modern societies, to grasp relationships as expressed in mathematics, and to conceptualize man's potentialities. Three components are included in this phase: humanities, social science, and natural science.

Scholarly Modes of Knowledge, the second area in the undergraduate program, differs from General-Liberal Education in two essential ways: the content in Scholarly Modes of Knowledge is more directly applicable to teaching in the elementary school, and the modes or styles of inquiry of scholars are stressed. The components of this area include linguistics, communication, literature for children, fine arts, social science, and mathematics.

Professional Use of Knowledge provides an opportunity for the student to learn how to translate knowledge into educational action in classrooms and communities. The components are reading, language arts, social studies, science, and mathematics.

In *Human Learning,* students explore human capacity for learning, study environmental systems, and inquire into cognitive and affective development, those areas which planned educational experience must bring into interaction.

Clinical Experiences are designed to develop and expand a prospective teacher's facility in employing the clinical behavior style of teaching. To do this, progressive intensity of pre-professional contract with children and schools occurs through five phases: tutorial, career-decision seminar, analytical study of teaching, teamed teaching, and internship. Clinical procedures are analyzed and practiced through both simulated and actual situations. In the last phase of pre-professional education, internship, students are assigned full-time to elementary schools as classroom teachers under the guidance of intern consultants, each of whom works full-time with five interns. In a unique cooperative school district-university fiscal arrangement, the combined salaries of the five interns and their consultants are equated with that of five beginning teachers, thus insuring adequate supervision as a built-in part of the program.

Continued Professional Study

The completion of preservice teacher education requirements is only the beginning of a professional teacher's development. Joint responsibility by schools and universities for the in-service education of all professional and auxiliary personnel is a necessity today.

This program model is predicated upon joint responsibility by several educational agencies for the continuing education of teaching staff. A Clinic-School Network consisting of 150 schools already operating provides a laboratory for development of the program and continual feedback. Elementary schools become the clinic setting for preservice teacher development. They furnish the basis for material upon which the undergraduate program is built, and they become the testing ground for teacher education theories. Prospective teachers observe pupils there and analyze teacher-behavior patterns. Interns teach there. University staff work there in developing appropriate materials for undergraduate instruction.

In a similar manner the university and the elementary school cooperate to promote the continued education of practic-

ing teachers. Through joint school district-university arrangements seminars are developed. University scholars become sources of assistance in specific school studies concerned with improving instruction. Human and material resources from both the local school system and the teacher education institution assist beginning teachers. Building upon intern experiences, skill in utilizing inquiry modes is further extended through a variety of learning situations.

Advanced study in the behavioral sciences for practicing teachers is directed toward a more sophisticated understanding of the variety of environments within which children develop, and the creation and utilization of the diagnostic, prescriptive and evaluative tools for working with them in the school-community situation.

Program Evaluation and Development

A viable teacher education program requires a carefully designed, extensive and workable evaluation system which in turn supports program development. Cognitive, effective and psychomotor domains must be included in such assessments.

The teacher education program model is designed for constant evaluation and feedback into the program. Each modular experience can potentially be tested for its contribution to a teacher's development and test results can be compared with those of alternative experiences. The sequence of modular experiences can be assessed for continuity. Student assessment during the process, information retrieval, built-in check points, professor evaluation and student performance during internship are some avenues for testing modules. These same procedures are useful in examining the effectiveness of module clusters.

Not only is the program designed to develop a clinical behavior style in graduates, it also utilizes a clinical approach in its own instruction of students and provides for continued renewal through analysis of the program itself.

NORTHWEST REGIONAL EDUCATIONAL LABORATORY

A COMPETENCY BASED, PERSONALIZED AND FIELD-CENTERED MODEL OF AN ELEMENTARY TEACHER EDUCATION PROGRAM†

H. Del Schalock
Oregon State System of Higher Education

The ComField model has four distinct features: 1) it requires the *demonstration of competence in the performance of teaching tasks* as a basis for certification, 2) it requires the development of procedures to insure that the teacher education program pursued by each student is *personally relevant*, 3) it requires a *genuine partnership* with the schools in designing and carrying out the program, and 4) it requires a *new form of management system* that can support the demands of the program.

I. The characteristics of a teacher education program that is *competency based and systematically designed.*

Broadly speaking such a program requires a) specifying what it is that is to be accomplished by the program, b) ordering events in such a way that there is a high probability of realizing the outcomes desired, c) assessing whether events do in fact accomplish that which they are intended to accomplish, and d) if they do not, modify them until they do. In this sense a competency based, systematically designed teacher education program is representative of a generic problem solving model: that is, it is goal oriented and continuously adaptive on the basis of empirically based feedback.

Operationally a competency based, systematically designed preschool and elementary teacher education program requires:

1) a description of the nature and objectives of preschool and elementary education in the present and

† Project No. 8-9022, Contract No. OEC-0-8-089022-3318 (010), October 1968, U.S. Department of Health, Education, and Welfare, Office of Education, Bureau of Research.

forseeable future society;
2) specification of the functions which teachers will likely be called upon to perform within those settings;
3) specification of tasks involved in performing the various functions outlined in (2);
4) specification of the sensitivities and capabilities (competencies) that a teacher is likely to need in order to perform those tasks, and the knowledge, skills, personality characteristics, etc., that are prerequisite to their development;
5) the identification of the behaviors or products of behavior that are acceptable as evidence of the ability of prospective teachers to perform the tasks outlined in (4), and of the mastery of the knowledge, skills, etc. that are prerequisite to that ability;
6) the development of procedures to be used in providing reliable measures of the behaviors or products outlined in (5);
7) the design of instructional experiences that have a high probability of bringing about the outcomes specified in (4); and
8) the development of the instructional experiences specified in (7), determining whether they do in fact achieve that which they have been designed to achieve, and if they do not recycle their design, development and testing until they do.

The rationale for and procedures involved in each of the above steps are summarized in Volume I of the Final Report describing the model.

II. The characteristics of a teacher education program that is *personalized.*[1]

Broadly speaking, and within established limits, the personalization of a teacher education program refers to a) the right and responsibility of each student in the program to negotiate that which he is to take from it, i.e., the teacher functions that he is to be able to perform at the end of the program, the tasks within functions for which he will be responsible, and the specific settings within which he will demonstrate competency in those tasks; b) the right and responsibility of each student to negotiate the way in which his objectives are to be met, i.e., the particular set of learning experiences to be pursued in developing the competencies needed to demonstrate mastery of a task, the choice of rate by which to pass through the set of learning experiences, the sequencing of learning experiences, etc.; and c) the right and responsibility of each student to negotiate the criteria by which he is to be judged successful in demonstrating ability to perform a task.

Operationally the personalization of a teacher education program requires, within established limits:

1) an opportunity for students to contribute meaningfully to the definition of the over-all teacher education program;
2) an opportunity for students to develop a minimal level of self understanding as a basis against which to make judgments relative to general and personal program definition;
3) an opportunity to negotiate a pro-

[1] The description that follows represents an extension of the thinking done during the course of the project about the personalization of a teacher education curriculum. The extended thinking was done by representatives from colleges and schools in Oregon in preparation for Phase II proposal in the model teacher project.

gram that is personally relevant;

4) an opportunity to negotiate the settings within which the competencies negotiated in (3) are to be demonstrated;
5) an opportunity to negotiate the criteria by which judgment is to be made about competence;
6) an opportunity to continuously assess the value or relevance or meaning of the objectives that have been negotiated, and the educational experiences designed to lead to those objectives; and
7) an opportunity to develop an overall "style" of teaching that is in concert with one's self-understanding.

The rationale for and procedures involved in the above steps are summarized generally in the first volume of the final report.

III. The characteristics of a teacher education program that involves a *genuine partnership* with the schools.

If the aim of teaching is learning, then there should be evidence that teachers can in fact help children learn before they assume responsibility for doing so. At a beginning level, such evidence can be obtained under laboratory or simulated conditions. Here the ability to effect a change in the behavior of pupils can be demonstrated under circumstances where the complexity of the teaching-learning situation can be controlled and negative consequences for children minimized. In the proposed teacher education program the college is the agency primarily responsible for the preparation of prospective teachers through this level of competency.

A basic assumption of the ComField model, however, is that before assuming full or unsupervised responsibility for guiding the learning of pupils, prospective teachers must demonstrate the ability to do so within the context of ongoing classrooms. The rationale underlying such a specification is, simply, that certification as a fully responsible teacher can be justified only when there is evidence that the teacher can do that which he is to be responsible for doing.

The commitment to having school personnel share equally in the definition of a teacher education program, and to insist that prospective teachers systematically demonstrated their competency in ongoing classroom situations prior to certification, has far reaching implications for the structure and organization of both schools and teacher education programs. Operationally it will require:

1) that mechanisms be established which permit colleges and schools to work together as partners in program definition and direction;
2) that colleges and schools be restructured to accommodate the demands of shared instructional responsibility; and
3) staff in both colleges and schools be retrained to handle their differential instructional responsibilities.

IV. The characteristics of a *management system* which can support the demands of a competency based, personalized and field centered teacher education program.

Every instructional program has to be managed. In most programs these functions are taken as a matter of course; administrators, registrars, counselors, and maintenance personnel are unquestioned elements in program operation. In a ComField based teacher education program these same supporting functions must be provided, but because of the

performance based, individually paced, personalized and largely self-instructional nature of such a program they must be provided in a markedly different form. In order to operate, a ComField based instructional program requires eight support functions:

1) personnel selection and training;
2) maintenance of equipment, supplies, and facilities;
3) the development of instructional systems for use in the program and the pursuit of the basic research needed in support of that function;
4) continuous evaluation of the effectiveness and appropriateness of the program;
5) continuous adaptation of the program in light of its systematic appraisal;
6) the cost accounting of the program;
7) the execution of the program; and
8) maintenance of an information management system that will permit all of the above to occur.

The rationale for and procedures involved in each of the support functions appears in the Final Report of the project.

V. A summary of the contributions of the ComField model to an elementary teacher education program.

By adopting the ComField model an elementary teacher education program is in the unique position of being able to a) provide evidence that a prospective teacher is able to perform the tasks that he is expected to perform prior to assuming responsibility for the teaching of children, b) provide the means whereby schools can become intimately involved in the preparation of persons responsible for their operation, c) provide the means whereby prospective teachers can contribute significantly to the shaping of the curriculum that is to guide their professional development, d) provide the means whereby a college educational experience has personal relevance, e) provide the support systems needed to carry out such a program, and f) provide evidence as to the cost, effectiveness and benefit derived from such a program. It is also anticipated that two "second order" outcomes will occur from a program so conceived: g) that prospective teachers will develop into independent, self directed, continuing learners themselves, and h) that the systematization and personalization of instruction will transfer to the education of preschool and elementary children. The basic assumption underlying hope for such a long-range outcome is, simply, that when prospective teachers themselves engage in an educational experience in a way which gives it personal meaning, and when they themselves become independent, self directing learners, they above all others will be likely to create a similar kind of learning experience for the children they teach.

THE UNIVERSITY OF PITTSBURGH MODEL OF TEACHER TRAINING FOR THE INDIVIDUALIZATION OF INSTRUCTION†

Charles J. Gorman
University of Pittsburgh

Introduction

Individualized instruction has been sought by many teachers during the short history of American education. Through the years, volumes have been written on this concept and glib speakers have urged the implementation of an instructional program geared to each learner. Unfortunately, very few examples of genuine individualization can be found today in the schools of our country. The University of Pittsburgh model of teacher training has been prepared with individualized instruction as the central theme. It is hoped that this training model will make a significant contribution to the implementation of individualized instruction.

A general definition of individualization, adopted in the model, is as follows: Individualized Instruction consists of planning and conducting, with each pupil, programs of study and day-to-day lessons that are tailor-made to suit his learning requirements and his characteristics as a learner. Thus, by definition, the individualized instruction which has been conceived in this model is marked first by planning and then by implementing the plan.

Model Features

Four structural features dominate this model for teacher training. In two of these features, flexibility and self-development, personal needs have been recognized. With the other features, mastery and efficiency, professional qualifications were acknowledged.

Flexibility was viewed as an essential feature in any endeavor which honors individualization. This attribute is evident in the model as such procedures as *Alternate Learning Routes* were incorporated in various learning modules. In this manner, different rates and styles of learning were accommodated.

† Project No. 8-9020, Contract No. OEC-0-8-089020-3309 (010), October 1968, U.S. Department of Health, Education, and Welfare, Office of Education, Bureau of Research.

Self-development was featured in several phases of the program. The selection process incorporates it through assessment of potential candidates. By this process, training can be adjusted for each student. Extensive group process experiences also focus on this area. Through such techniques, students learn how to help others in a group or team setting.

The Pittsburgh Model also characterized the concept of mastery. Trainees will be expected to demonstrate that learning goals have been met and movement through the program will be predicated on the evidence of mastery of specified learning goals. However, rigid standards of performance for all trainee's will not be used.

Efficiency is the final feature of this teacher training plan. This trait is related to the notion of flexibility. Efficiency is a prime feature for it refers to the practice of adjusting to individual knowledge, learning style, and interests. In this way, undue delays and unnecessary repetitions are avoided.

Requirements

The requirements of this model are classified under five interrelated categories. As a whole, they form a network consisting of cognitive input, affective experiences, and field participation. The specific requirements are (1) academic education, (2) professional education, (3) teacher competencies, (4) a clinical setting, and (5) a guidance component.

Academic Education refers to the liberal arts specifications. Included in this domain are communications, humanities, social sciences, and natural sciences. While the content of this area is not noticeably different from the past, it is proposed in the model to change the manner of teaching the liberal arts specifications.

Professional Education includes the study of learning theories, child development, psychology, and all other areas related to teaching children. In one sense, this requirement could be labeled the "knowledge base" of teaching. Education presently lacks such a base. This condition can be improved upon by the establishment of a systematic feedback process which monitors the training program. The Pittsburgh Model includes the strategy to initiate this process.

The third requirement refers to *Teacher Competencies,* which are described in the form of behavioral outcomes. The nine categories include (1) specifying learning goals, (2) assessing pupil achievement of learning goals, (3) diagnosing learner characteristics, (4) planning long-term and short-term learning programs with pupils, (5) guiding pupils with their learning tasks, (6) directing off-task pupil behavior, (7) evaluating the learner, (8) employing teamwork with colleagues, and (9) enhancing self-development. In designating this list of behaviors, the model builders acknowledged the open-ended nature of each category. Research and experience will enable further clarification of the role of the teacher for individualized instruction.

The *Guidance Requirement* includes group process experiences, individual counseling, and group directing. Self-realization, self-development, and self-evaluation are major goals of this section.

An adequate *Clinical Setting* has been described in the model as one which grows out of agreement by the university, school district, professional organization, and governmental agencies. A new form of cooperation has been proposed around the central purpose of this model – the individualization of instruction.

Student Progress Through The Model

In general, this model follows the basic procedures of most instructional models, i.e., trainees are provided experiences of an instructional nature in order to change their behavior as indicated by the specific goals and objectives of a program. The Academic Education requirement is the dominant theme of the first two years of training. Toward the end of the second year, the trainee indicates an interest in the teaching profession. At this time, a thorough admission process is initiated which includes experiences in the clinical setting for each candidate. The final two years of pre-service education includes a focus on Professional Education, Teacher Competencies, and self-development through the Guidance requirement. Most of these experiences occur in the Clinical Setting. The trainee experiences several roles during the final two years such as Assistant Teacher, Student Teacher, and Intern.

As the trainee participates in the Clinical Setting, the dominant features of this model – flexibility, self-development, mastery, and efficiency – are manifested throughout the process. The length of Student Teaching will be adjusted in accordance to the needs of the trainee. Long-term group process experiences will be provided to avoid a superficial sensitivity to self. Evidence of specific competencies will be sought and provisions will be made for the trainees style of learning and operational level.

Summary

The University of Pittsburgh model of teacher training for individualized instruction is a general plan. Elaborate units or extensive instructional modules have not been prepared because the model builders view the development of such instructional materials as the necessary experience of all faculties interested in the individualization of instruction.

One vital agreement reached by the team which built this model was that trainees must witness individualized instruction throughout the pre-service experiences. In this way, the concept of individualization likely will be internalized. Thus, it is assumed that graduates of this experience will make a significant contribution to the implementation of procedures leading to individualized instruction in the schools of America.

THE SYRACUSE UNIVERSITY MODEL FOR THE PRESERVICE AND INSERVICE EDUCATION OF ELEMENTARY SCHOOL TEACHERS†

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Scope of the Model

The Syracuse University Model is a generalized model that is intended as a blueprint for the development and implementation of a teacher education program for the general elementary school teacher who would also be equipped with a unique specialization. In addition, the model is designed to be adoptable by a variety of teacher training institutions.

Assumptions

The model was built on six principal assumptions.

No one point of view regarding teacher education has been demonstrated to be most effective. It was therefore assumed that the model should facilitate the ultimate development of a program characterized by a pluralistic, open dialogue involving students, teachers, and researchers, that would generate hypotheses that could be tested and that in time may tighten the circle around those ideas, activities, artifacts, and types of people that would be necessary for a more ideal teacher education program than those that currently exist.

Secondly, an uncertain future was assumed in which there will be children to educate. Since it is not known what form that future world, its societies, and institutions will take, or how the children of such a society should be educated, it was further assumed that teachers educated today must be educated to be continually self-renewing as they adapt to and play a major role in shaping the unforseen changes that seem certain to characterize the future world of education.

A third assumption was that the Model Program, when implemented, will be relevant in the changing world in which it will "live" only if it has a built-in intent, action, feedback system for processing

† Project No. 8-9018, Contract No. OEC-0-8-089018-3313 (010), October 1968, U.S. Department of Health, Education, and Welfare, Office of Education, Bureau of Research.

ideas and generating hypotheses regarding modifications of the programs as a system *qua* system, and as a system in interaction with the changing world in which it will exist.

This led to the fourth assumption, namely that the development of self-renewing teachers can be accomplished only by a self-renewing program staffed by self-renewing teacher educators. This, therefore, assumes continuing inservice education for the professional staff of the program.

A fifth and critical program assumption was that learning styles, learning rates, and what a person considers important to learn, in part constitute the uniqueness of each individual. Indeed, a program that accommodates unique differences was seen to be a necessary condition for fostering the development of self-renewing teachers.

The final assumption underlying the program was that the optimum functioning of the Syracuse Model would be dependent upon a teacher education protocooperative that involved teacher education institutions, public schools, and the designers and developers of educational materials and programs working together in new responsible and cooperative ways that would be of mutual benefit to each institution.

Structure of the Model Program

The Syracuse Model Program is designed as a five year program, though it will undoubtedly take some students considerably less time, and some students considerably more time to complete the program. The terms junior and senior years, therefore, are used to describe program units rather than time units. The first two years of the program and a substantial portion of the third year are made up of liberal studies. This includes the conventional liberal arts program and a liberal education component constructed of three two-semester hour courses dealing with the humanities, the social sciences, and the natural sciences.

The remainder of the junior year of the Model Program is designed to provide the student with a pre-professional introduction of the field of teaching. For the student, the junior year is in one sense an exploration of the world of the elementary teacher. The pre-professional part of the junior year is structured around six professional components. These components are: (1) the Methods and Curriculum Component, (2) the Child Development Component, (3) the Teaching Theory and Practice Component, (4) the Professional Sensitivity Training Component, (5) the Social and Cultural Foundations Component, and (6) the Self-Directed Component. Each of these components is highly process-oriented. That is to say they focus on: (1) the process of using knowledge and skill in the area of elementary methods and curriculum for the purpose of resolving teaching problems, (2) the process of applying observational skill and knowledge of child development theories in making curriculum and instructional decisions, (3) the process of using principles of teaching theory to develop a flexible repertoire of instructional behaviors to be used in teaching, (4) the process of becoming more aware of self, self as a teacher interacting with children, and self as a teacher who is a member of an organization, (5) the process of using knowledge and skill from the social and cultural foundations to understand the forces affecting pupils, teachers, and American education as well as the processes of analyzing the logic of educational language, and (6) the processes of developing a disposition for self-direction

as student and a teacher.

Each of these program components is composed of a series of instructional modules. A module is defined as a planned instructional episode of a duration ranging from a minimum of several hours to a maximum of several months. Most modules have pre and post performance measures, though some are designed so that performance measurement is continuous. Modules in the Syracuse Model take on many forms including totally mediated instructional episodes and student-directed seminars evolving from student concerns. The largest grouping of students specified in any module is found in seminars of twelve to fifteen students. In many modules the student engages in totally individualized instruction.

During the junior pre-professional year, the student learns and applies his learning as he proceeds largely at his own rate through a series of instructional modules that comprise the six professional components. Applications of learning occur in such diverse settings as mediated simulations, the tutoring of elementary school pupils in tutorial centers, and in exploratory micro-teaching.

Thus, during the junior year, in addition to an exploration of the world of the elementary school teacher, the student learns a series of professional skills and knowledge that become the foundation for full-time professional study and practice during the senior professional year and the resident year.

Should the student decide to pursue full-time professional study, he would continue work in modules of the six professional components in greater depth and intensity during the senior professional year. In the senior professional year, tutorial relationships with elementary school pupils and exploratory micro-teaching are replaced by a series of increasingly more complex teaching experiences that bring the students step by step to the point of planning, teaching, and evaluating a series of teaching activities and units for which he is responsible. This is accomplished in Teaching Centers located in the public schools staffed by trained clinical teachers and clinical professors. The supervision of the student in the Teaching Centers is accomplished through the use of team supervision where generalists (clinical teachers) and specialists (clinical professors) work with students on a variety of team-planning and team-teaching problems.

The Model provides for the student to make a decision about a teaching specialization during the senior professional year. The specialization could be one as general as nursery school education or teaching the social sciences in the elementary school, or as specific as information retrieval and data processing, or writing children's literature for intermediate grade Mexican-American children. Provisions are made in the Model for the student to explore several specializations before making a tentative decision regarding a specialization of his choice. Assisting the student in the process of thinking through significant problems in elementary school education, finding a problem area that is of interest to the student, and then working out a program of studies leading to a specialization in that area is one of the functions of the Self-Directed Component. In addition, each other component provides for open exploration modules to assist the student in choosing an area of specialization.

Should the student decide to continue for the fifth year of the program, he would pursue his specialization program during the summers preceding and following the public school year, and engage in full-time resident partnership teaching at a

Resident Center for an entire school year. In the Syracuse Model, partnership teaching means that two teachers share the responsibility for one classroom for which each receives half salary as a beginning teacher. Supervision of the residents would be performed by a team of trained clinical professors who would also conduct seminars at the resident centers, the content of which would be drawn from the residents' teaching problems. In many cases these seminars would be applicational extensions of the professional training obtained in the components of the junior and senior years. The partnership assignment of two residents to one classroom is designed to provide for flexible scheduling of teaching, intensive participation in curriculum building projects, and independent study in the students' area of specialization.

The Model makes provisions for the granting of a bachelor's degree upon completion of the fourth year of the program or the master's degree or its equivalent upon completion of the resident year and the course work preceding and following the resident year.

Supporting Systems

Though this summary is but a cursory overview of the detailed specifications of the Syracuse Model, the reader must be struck with questions relating to such issues as: (1) the instructional logistical problems associated with a modularized, largely self-paced program that makes use of a variety of instructional experiences located in university, public school, industrial and regional laboratory facilities, (2) the need for collection, analysis, and storage of information to monitor student progress, evaluate the program and provide data for research purposes, (3) the inservice training of university and public school personnel to staff such a program, and (4) the establishment of a protocooperative organization that draws resources and personnel from teacher training institutions, public schools and the designers and producers of educational materials and programs.

The designers of the Syracuse Model were also acutely aware of these potential problems that would face an adopting institution. Thus three support systems were considered as a necessary and integral part of such a complex teacher education program. These three support systems are: (1) the Program Support System, (2) the Information and Evaluation Support System, and (3) the Organizational Support System.

The Program Support System has three primary functions: (1) the design, development, and testing of instructional modules, (2) the redesign, redevelopment, and retesting of instructional modules that when put into operation or over time are found not to function up to specifications, and (3) providing the necessary maintenance functions to support the instructional program in operation. Each of these, but particularly the redesign function, is dependent upon a variety of information.

The Information and Evaluation Support System is designed to perform the important role of providing the Program Support System with the information it needs to perform its redesign and redevelopment functions. In addition, the Information and Evaluation Support System is charged with the task of gathering information about student progress and feeding this information back to the student and instructional staff in a form that will be useful in facilitating the student's self-paced progress through the program. A third function of this system is gathering and analyzing data for research pur-

poses.

The Organizational Support System has as its responsibility (1) the development of personnel, through inservice training, and (2) the development of a protocooperative organization that can facilitate the attainment of the goals of the Model Program by facilitating the internal operating structure of the program, and its relationship with the larger organizations with which the Model Program would be associated, and on which it would be dependent. These institutions would be the university, school systems, the educational industries and the regional laboratories from which personnel and resources would be drawn to support the teacher education protocooperative.

Though the developers of the Syracuse Model saw the teacher education protocooperatives ultimately replacing the university and college as the institutions responsible for the preparation of teachers, provisions are made for the evolution of such institutions from existing organizational structures.

COLUMBIA UNIVERSITY MODEL PROGRAM†

Bruce Joyce
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The creation of the program begins with the recognition that we do not have final solutions to our educational problems. Hence, the teacher candidate cannot simply be taught what and how to teach, but needs rather to prepare to participate in the philosophical dialogue about the purposes of education and the empirical quest for appropriate ways of creating educative environments. The focus of the Teacher-Innovator program is the preparation of a teacher who inquires into what he does and who attempts to develop new and more effective educational processes and forms.

The program is characterized by features which were designed to involve the teacher candidate in dialogue about alternative educational missions, to help him develop a technical repertoire for making and carrying out educational decisions, and to enable him to practice educational innovation and develop commitment to an innovative professional life.

The Model of a Teacher Innovator

We identified four roles which seem essential for the teacher who is an innovator and a scholar. Within each role, certain kinds of control appear necessary.

1. *The Institution-Builder.* (Shaper of the School). In this role the teacher-innovator works with other faculty members, community representatives, students and administrators to design complete educational programs and organizational structures to bring them into existence. The shaper of the school controls strategies for studying and designing curricula systems; analyzing and creating effective social systems in the school; and assembling and employing technical support systems which facilitate education.

2. *The Interactive Teacher.* The most

† Project No. 8-9019, Contract No. OEC-0-8-089019-5307 (010), October 1968, U.S. Department of Health, Education, and Welfare, Office of Education, Bureau of Research.

familiar teaching role occurs during contact with children. At that point the teacher needs strategies for making instructional decisions which are tailored to the characteristics and needs of the students. He can work with groups of children to build effective democratic structures through which they can conduct their education. He controls a wide variety of teaching strategies and wide range of technological assists to education. He is a student of individual differences and he has the interpersonal sensitivity to touch closely the minds and emotions of the students and to modify his own behavior as a teacher in response. He is able to bring structure to chaotic situations without being punitive. The teacher does this in company with his colleagues. He rarely works alone partly because he is more effective when teamed with others but also because he needs their colleagueship and the shared analysis of teaching and learning that is a continuous part of their professional life. With them he controls techniques for designing continual small experiments of teaching and learning.

3. *The Innovator.* To be an innovator rather than a bureaucratic functionary a teacher needs to combine personal creativity with ability to work with others to build educational settings in which innovation rather than imitation is the norm. He has techniques for analyzing the social structure of the school, especially how it inhibits or facilitates creative behavior.

4. *The Scholar.* As Robert Schaefer puts it, we cannot "wind the teacher up like an old victrola and hope that he will play sweet cerebral music forever." Continuous scholarship renews him and adds to his knowledge about education. He controls techniques for studying the processes of interactive teaching and he can test theories of learning. He specializes in one discipline until he knows the nature and modes of inquiry of that discipline. Equally important, he knows how to engage in research that relates that discipline to the lives of young children. He controls structures for studying the school and for studying teaching and learning, so he can design and carry out educational experiments. He masters a range of teaching strategies derived from different views of learning, and more important than that, controls techniques for developing and testing new ones.

The Structure of the Program

These four future oriented roles: the *Interactive Teacher*, the *Institution-Builder*, the *Innovator*, and the *Scholar* became the sources of the structure of the program. Two frameworks were then developed for the program. One consists of general procedures which unify the program and are shared by all of its components. The second consists of four components, one developed around each of the four roles of the teacher-innovator, and each of them designed to yield control over the areas necessary to that role. The four major components are interrelated and overlapping. They are dimensions of the program, rather than walled-off compartments. Each, however, has its distinct rationale and organization. Let us look first at the general methodology and structure of the program, and then at each of the four components.

The General Methodology: Democratic Involvement and Self-Teaching

It is appropriate to organize teacher education so that students participate in the shaping of their preparation to teach. Although it is important that they share in decisions of policy, those decisions usually affect the students who are to come, rather than those of the present time. However, the participation in the day-by-day decisions that affect their education gives to the students a large measure of control over their own education. To bring this about, the candidates are organized into democratically-operated "inquiry groups" of about ten members. Each group relates to a faculty member who counsels the group and helps it to improve its democracy. The inquiry groups administer to themselves the substantive components of the program, modifying them as they go along with the assistance of the faculty advisers and faculty specialists in the components. At the beginning of each component and subcomponent there is an orientation to acquaint the students with the objectives and means of the components. All substantive components are organized in small modules with embedded evaluation devices. These small segments are more manageable for student planning than large segments would be and the embedded evaluation procedures enable students to monitor their own progress and replan in light of evidence.

Interactive Teaching Repertoire: The Teaching Strategies Component

Four sub-components make up this most extensive of the components designed to enable the teacher candidates to develop the technical capacity to teach, to develop new teaching procedures, and to make models for teaching instructional decisions and carry them out.

The heart of the technical repertory is the mastery of several teaching strategies derived from theoretical stances toward teaching and learning. The component employs small-group teaching and intensive analysis of teaching aided by television and audio tape reproduction of teaching episodes. The candidates begin by mastering four basic teaching "moves" which are the basis for the repertoire. They then proceed, in groups of four, to study and master several teaching strategies developed from important conceptions of teaching. These teaching strategies were selected with two criteria in mind. First, they provide teachers with the means for accomplishing a wide variety of educational purposes, from very open affective objectives through very specific cognitive ones. Second, they include a very wide spectrum of teaching behaviors. After mastering the set of initial teaching strategies, the teacher candidates proceed to develop and test their own models of teaching. For this purpose, the teacher candidates run their own small school, offering services to children in return for the opportunity to develop and test new teaching strategies.

Learning the models of teaching is accompanied by the flexibility-training subcomponent, which is designed to teach the candidates how to discriminate student behavior and create teaching strategies tailored to the children. The distinctive feature of this training effort is the Communication Task, a simulated teaching situation in which the teacher candidates teach role players who simulate various aptitudes, motivations, and values. The candidates learn to detect the learner characteristics and to behave in appropriate ways. In addition, the candidates learn to use the Formanck-Spaulding system for studying the responses of children to environmental factors.

Decision-making

An informational simulation (a data bank containing eighty categories of information on fourteen children, one hundred categories and three communities, and a sample of curricular strategies and instructional materials) provides a setting for instruction in instructional decision-making. The teacher candidates are presented with typical instructional problems and use the data bank to gain information relevant to the formulation of solutions. Gradually they are presented with the same types of problems related to "real" children and refine the decision-making strategies they have formed in the simulation.

Social Organization of the Classroom

All of the models of teaching described earlier have potential not only for instruction but for helping children learn to build an effective and cooperative social system.

Working with small groups of children, the teacher candidates select and employ models designed to improve the social system of the group. By studying the effects of the models, the candidates develop general approaches to developing the social organization of classrooms, including disorderly ones.

Shaping the School: Institutional Strategies

Teaching involves the creation of school environments as well as interactive or pupil-directed activity.

In the informationally-simulated school, candidates are introduced to a variety of curricular strategies, to principles for developing support systems for children and teachers, and to principles of social organization.

In an experimental school, the candidates are attached to teams under whose guidance they study the processes of developing curricular, technical, and social systems for groups of children.

Then, in the candidate-operated school, mini-schools are created by the candidates, practicing the strategies they have learned, and concerning themselves with the curricular, technical, and social aspects of schooling.

Studying Teaching and Learning

A third component prepares the teacher-innovator to study teaching and learning. He learns and applies to his own teaching a number of techniques for studying teaching, including interaction analysis systems and, as he designs and experiments with models of teaching, he learns how to design educational experiments.

He learns techniques for studying the cognitive and affective development of children, employing one developmental theory in each domain, and, as he teaches, tries out Louis Smith's procedures for inquiring into the microethnology of the classroom.

Developing a Commitment to Innovation

The inquiry groups of ten or twelve teacher candidates are sub-divided into "feedback groups" of about four members. These two groups memberships are the primary reference points for the teacher candidates. Within these groups they study teaching and engage in experimentation throughout the program. The members study one another's teaching and review one another's study. The success of the entire program depends on the commitment to innovation that develops within each inquiry and feedback team. To help make the commitment to innovation an explicit one, the "contact

laboratory," or setting for experiences with children, is organized thusly.

Phase One: Apprentice-type student teaching (feedback teams are placed together). During this phase, candidates study life in schools and analyze factors exhibiting and facilitating innovation.

Phase Two: Small-group teaching (feedback teams are placed together). During this phase, candidates practice the models of teaching and design experiments utilizing them.

Phase Three: Apprenticeship and experimentation in the school as a center of inquiry. In the experimental school, candidates study experimental teams at work and design and carry out their own educational experiment.

Phase Four: The candidate-operated school. Either in summers or after normal school offer school services to children. In this phase, they practice the institution-shaping techniques they have learned and continue their teaching experiments.

Although the entire program emphasizes self-teaching and self-pacing by the candidates, most of the activity takes place in small groups who inquire continuously into teaching and learning. Mastery of teaching strategies and technologies for teaching and learning are seen as stepping-stones to scholarship and creative teaching, rather than as aspects of a performance model of teaching.

THE UNIVERSITY OF GEORGIA MODEL PROGRAM †

A SUMMARY

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The Georgia Proposal

The proposal submitted to the U.S. Office of Education's Bureau of Research by the University of Georgia, College of Education, contained a system designed to develop a model of elementary teacher education "to produce teachers with the common characteristic of optimum effectiveness." The Georgia Education Model details specifications in four classifications: candidate selection, teacher performances, evaluation and organization for instruction.*

The objective of these specifications is to provide an exemplary and comprehensive educational program for elementary teachers to prepare them for teaching within the 3 to 12 age range.

Procedure

A systems network was constructed for the flow of events to develop a continuous preservice and inservice program to prepare elementary teachers. Since a major concern of the project in its initial phase was to prepare a job analysis of a high quality elementary teacher, all preliminary activities were focused in this direction. The requirements of society and knowledge from various resources and materials contributed to the determination of the goals of the elementary school. These goals in turn served as bases for determining the objectives. Yet, the selection of the objectives was also affected by the recommendations of professional societies and what was known of the

† Project No. 8-9024, Contract No. OEC-0-8-089024-3311 (010), October 1968, U.S. Department of Health, Education, and Welfare, Office of Education, Bureau of Research.

* Special Note: The specifications are not reprinted in this document. However, they are available in the JOURNAL itself and in the full report.

effectiveness of educational technology. Once the elementary school objectives were determined, pupil learning behaviors which would guide children in acquiring characteristics represented by these objectives could be identified. From these pupil behaviors, teacher teaching behaviors which form the core for the job analysis were formulated. It was primarily the nature of the job analysis that determined the specifications for the model program.

Educational Viewpoint

Projections for the kind of elementary school necessary to achieve the requirements of society in the years ahead were derived from current trends, promising directions, and an accumulating body of theory and research. For use in the development of a model teacher education program the projections are, at best, hypotheses subject to confirmation, rejection, or modification.

The future elementary school will lose the present preoccupation with skill-level expectations and will immerse the child in experiences which stimulate thought development, idea clarification, and the direct quest of mutual understanding.

The notion of the traditional school program will be replaced by commitment to each child's program.

At any point, cooperative curriculum decisions will be guided by the total developmental attainment of the child and the interpretations made by goals of school and society.

In the elementary school of the future evaluation will be systematic, continuous, and broad. The utility of evaluation will be measured in terms of diagnosis and prescription, not in terms of singular numerical measurements. Evaluation will function as a mechanism for gathering feedback information which will be used to guide and adjust the variables of the learning environment. In effect, evaluation will become a general and comprehensive study of these variables.

Instruction in the future elementary school will consist of cooperatively selected experiences ranging from self instruction to mass-instruction in groups of from one to several hundred. Self initiation will become central in the instructional process and the school will provide the instructional resources. The degree and amount of social interaction among adults and children will increase.

An instructional team will be necessary. Specialist, generalists, and nonprofessional personnel will make up these teams. Teaching tasks will be differentiated so that the most appropriate use will be made of each member's talents. Extensive team planning will insure that each pupil is carefully guided and nurtured through his learning experiences.

The growing research base upon which the education of children in elementary school will be predicated will produce variability as diverse as the variable needs of the school program's client—the children of the community it serves.

Job Analysis

The basic approach was to analyze what must be done by the teacher to cause elementary children to advance on the learning continuum, and to provide cognitive and affective experiences specifically intended to produce desired teaching behaviors.

Teaching behaviors alone could not provide the total content for a teacher education program. Also relevant were general instructional principles, and organizational principles. These principles provided certain teacher objectives and additional teacher behaviors which, in turn, provided an

additional basis for the job analysis.

The teacher education program should also attempt to develop a teacher with adequate personality characteristics. Consequently, humanistic learnings, attitudes, and values were incorporated into the analysis. It is acknowledged that evaluative criteria for measuring attainment in these areas are inadequate. Despite this problem, the indicators are that the personality development of the teacher is as important as his intellectual development and demands its inclusion in the model.

Job Description

The analysis of the job of the elementary teacher led to a job description which resulted in the categorization of teaching tasks into four levels: aide, teaching assistant, elementary teacher, and specialist. A job description for each of these categories was prepared. The reader will recognize that most teachers in the elementary school today are responsible for all the tasks in the job description except those of the specialist. However, experience with teacher aides and interns has shown that differentiated use of staff is feasible in using time and talent more efficiently.

According to this classification, the aide performs a variety of important noninstructional tasks and activities under direction of an experienced teacher. A person at this level is primarily concerned with gaining experience in the school setting.

The second level among elementary school personnel is that of teaching assistant. The teaching assistant performs both instructional and noninstructional duties, thus assuming a more complex role. The assistant is generally directed by the teacher, with responsibility for initiating and executing a variety of tasks. These tasks can be performed by an individual with about half the degree and certification requirements of a fully trained teacher.

The professional elementary teacher has completed the requirements for a bachelor's degree and for certification. The tasks performed at this level will be largely instructional. The professional program also provides the student with a teaching area of concentration and the prerequisites for admission to the specialist program.

The specialist represents the highest level of competence provided in the program and performs in his field of speciality not only working with children but also by providing leadership and service to other school personnel.

Performance Specifications

From the job analysis, teacher performance specifications were identified to serve as the core specifications for the model. These are statements which describe a particular competency that a teacher should possess in order to operate at optimum effectiveness in a teaching-learning situation.

Specifications are presented for the teaching assistant, the teacher, and the specialist. Although students work at a rate most suitable for them individually, it is anticipated that the teaching assistant will exhibit the specified behaviors after 2 years in the program; the teacher after 4; and the specialist after 6. The system for classifying these is based on taxonomies (Bloom, 1956, Krathwohl, 1964) to designate the intended behavior of students that would result from specific learning experiences. The desired behaviors are classified according to the highest level of learning necessary for optimum performance in specific positions. The assumption is made that the objective in one class makes use of, and is built upon, the behaviors found in the preceding classes.

The development of certain motor skills

is considered to belong to certain aspects of the cognitive domain. However, some motor skills should be designated separately for certain tasks. These motor skills have been classified in four levels: (a) simple action (response), (b) coordination action (multiple action), (c) action sequence (procedure), and (d) system action (accomplishing an objective).

Finally, although the affective domain of the taxonomy has been used in the classification of some objectives for purposes of clarity and emphasis, those relating to personal development have been separately classified. Here, the taxonomy has not been used because it is hoped that each person (assistant, teacher, and specialist) will strive to achieve toward the maximum development of their individual personalities.

Each specification is to be carefully evaluated as data comes in from the teacher-on-the-job performance. The "feedback" or "self-renewing" model will constantly be in the process of revising, adding, and deleting its educational specifications.

Organization of Training

As a basis for making decisions for organization and presentation of content, criteria were established. Requirements included: (a) that the model program should be systematically planned in terms of goals and contain objectives so stated that they may be reduced to behavioral terms, (b) that content should be organized in accordance with what is known regarding how content is most effectively learned, (c) that instruction should be controlled by an achievement or mastery variable (rather than a time variable), (d) that content should be organized in such a manner that practical applications and basic theoretical concepts are introduced concurrently, with stress being given to their interrelationships, (e) that more complex theoretical considerations should be undertaken only after basic practice and theory have been assimilated, and (f) that content should be so selected as to give appropriate relative emphasis to all objectives including those related to the subject matter, thought processes, skills, and attitudes regarded as essential for effective performance of the teacher, both as an intelligent member of society and as a teacher.

In response to these requirements, Georgia Education Model created a vehicle which is specified as an essential feature of the system—the proficiency module (PM).

Proficiency Modules

The specifications require that all learning activities be directly related to teacher performance behaviors, and utilize what is called a proficiency module (PM) as a vehicle for organization and presentation of the learning activities and materials of instruction.

The content for any PM is a selected cluster of related teacher performance behaviors including not only definitions, facts, and concepts but also thought processes, motor skills, and attitudes. The core of the PM is a series of learning tasks regarded as the most effective known means of guiding students toward the acquisition of the performance behaviors. These tasks provide multiple sequences for the attainment of the desired end making them adaptable to individual differences among students in such characteristics as rate of learning, sensory sensitivity, and cognitive styles.

PM's are classified by types and blocks. The term *types* refers to classes of PM's which group themselves around common functional relationships such as the basic

PM's required for all students in the pre-professional program, and PM's required of all students enrolled for a particular area of competency. The term blocks refers to clusters of PM's which must be taken in sequence. For example, there are six PM blocks in the pre-professional program and 10 PM blocks in the professional program. The student must meet the level of proficiency required in all of the PM's of any block before he may move on to the next one.

Laboratory Facilities

The model specifies the need for five kinds of laboratory facilities: (a) General Resources Laboratories which include facilities used by all students of universities, colleges, and schools such as central libraries and computer instruction centers, (b) Instructional Unit Central Resources Laboratories which house and provide all learning materials and equipments essential for the undertaking of PM's within particular areas which are not readily or conveniently available in General Laboratories, (c) Instructional Unit Field Laboratories which provide field facilities as needed, (d) Clinics in which remedial services are provided when required, and (e) Instructional Unit Interaction Laboratories which arrange for such activities as special lectures, seminars, workshops, and recitals.

Provision is made for considerably more on-the-job laboratory experience than is usually found in the traditional program. During the professional phase two periods of approximately 6 weeks each are set aside for laboratory (para-professional) experiences working directly with children. The professional program provides three laboratory (semi-professional) experiences of approximately 6 weeks each, plus an internship (professional) experience of approximately 10 weeks. Specifications insure a variety of professional experiences working with children of differing chronological ages, races, and cultural backgrounds.

Evaluation

Observable performance specifications form the basis for various evaluative measures. Evaluation starts with admission when an interest inventory, personality schedule, and biographical information blank are administered. Thereafter, evaluation measures are prepared in each module program.

As an integral part of the work experience, the student teachers are assigned standard tasks. Standard tasks are appraised by appropriate techniques. For certain tasks (such as preparing an instructional aid) there are end products to evaluate. Other tasks follow routine procedures and can be evaluated by a check list (such as cataloging and filing materials). Some tasks can be checked for accuracy (such as measuring height and weight). Other tasks require ratings. Learnings in the affective domain are appraised predominately in laboratory experiences.

After all PM measures have been administered for a given block of the program, the progress of the student is reviewed by an adviser. The adviser critiques performance in the PM block, using all data available. The student is either permitted to advance to the next block, is retained for further training, or is referred for special advisement.

Other conventional evaluative measures include elementary school achievement batteries, parental attitude toward the goals of the system, and peer ratings to appraise how contemporaries regard the teacher's effectiveness. Supervisory ratings deal with the teacher's effectiveness and proficiency in performing assigned tasks. The video-tape of

teacher performance is recorded in a fashion similar to that in the aforementioned micro-teaching techniques.

This summary presents only highlights of the Georgia model. The final report details specifications for other features which the authors regard as exemplary. These include, among others: student orientation, guidance and continuous advisements; year-round educational offerings with staggered enrollment; commitment and mutual involvement of all educational agencies concerned with elementary teachers; and extensions of the notion of individualized instruction to provide for group interaction and clinical assistance.

BRIEF NOTES ABOUT CONTRIBUTORS

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